Displaying Error History (Bit Sampling Mode)

Bit sampling mode is used to store the times when errors occurred and were reset (bit ON/OFF times) as well as error contents, and to display the stored data.

Follow the steps below to use the bit sampling mode.

1. Register error messages to the [Message Edit] window.
2. Set up the [Buffering Area Setting] dialog for storing error contents.
3. Set up the [Bit Sampling] dialog for indicating stored error contents.

*** The [Alarm Display] function can also be used for displaying the time when errors occurred and were reset.**
For more information, refer to Chapter 14.

Keyword

Buffering Area

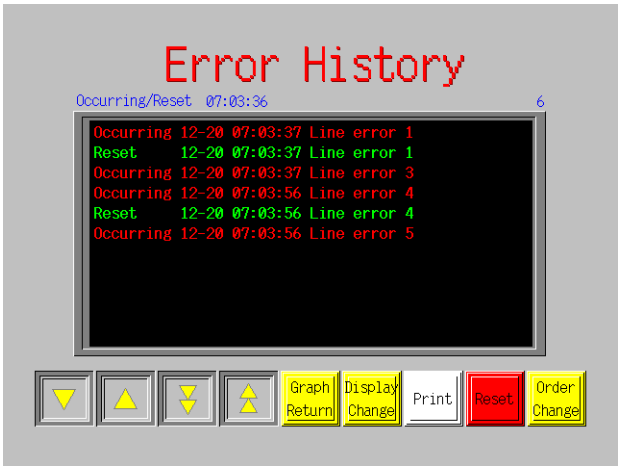
The buffering area stores data sampled. The internal buffer of V7 or memory cards can be chosen for data storage.

* Memory cards can be used only when V7 is available with internal or external memory cards (optional).

Data stored in the buffering area can be printed.

Unless the buffering area is cleared or the “Main Menu” screen is displayed, sampled data can be stored and displayed anytime even after screen change.

Create the following screen.



Procedure

Operation

Bring up a new screen for creating a bit sampling screen. Check silver-color (extreme right) for [F (foreground)].

([Edit] → [Screen Setting] → [F (foreground)] Silver-color (extreme right))

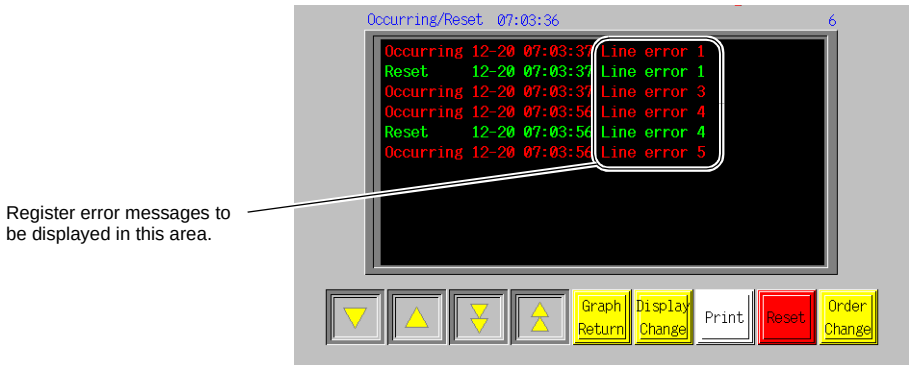
Place the title “Error History” at the center of the screen. Set up properties as shown below: (Refer to P10-1)

- Text: “Error History”

  Foreground: Red
  Background: Mahogany (No. 6 from the right)
  Rotate: Normal
  Direction: RGT
  Enlarge X: 3
  Enlarge Y: 3
  Italic: ☐ (Unchecked)
  ◉ Shadow

Error Message Registration for Display

It is necessary to register error messages to be displayed on the screen. Bring up the [Message Edit] window.



1. In “9. Displaying Messages by Setting/Resetting Bits (Relay Mode)”, group No. 0 has been selected in the [Message Editing] window for registering messages.

   Select [Message] from the [Item] menu. Select [Message] from the [Item] menu. The [Message] dialog is displayed. Enter “1” and click the [OK] button.

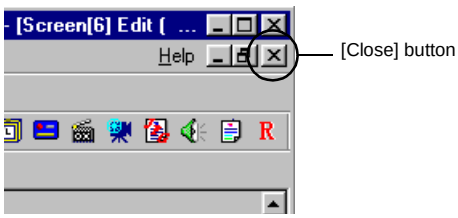
   The [Message [1] Edit] window is displayed.

2. In this example, register fifteen error messages from line No. 0.

Line No.	Message	Line No.	Message
0	Pot error T1	8	Sensor pot error T5 DS
1	Pot error T2	9	
2	Pot error T5	10	
3	Sensor pot error T1 OS	11	
4	Sensor pot error T1 DS	12	
5	Sensor pot error T2 OS	13	
6	Sensor pot error T2 DS	14	
7	Sensor pot error T5 OS		

For the message editing procedure, refer to Message Registration on P9-3.

3. When messages have been registered, Click [x] (close button). The [Message [1] Edit] window is closed.



Buffering Area Setting

Buffering area is set to store error data.

In the [Buffering Area Setting] dialog, the desired buffer number can be chosen, and sampling mode, the number of sampling times, etc. can be specified for the buffer.

The maximum capacity of the buffering area is 32k words. The buffering area can be divided into 12 sections (buffer No. 0 to 11). Sampling data can be stored in each buffer.

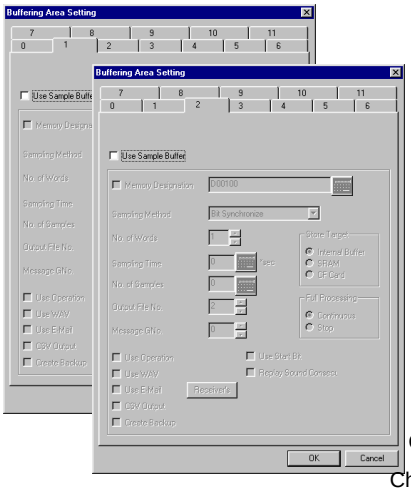
[Buffering Area Setting] Dialog

The buffering area is set in the [Buffering Area Setting] dialog. Select the [System Setting] menu, and click [Buffering Area Setting]. The [Buffering Area Setting] dialog is displayed.

Buffer No. 0 is used in this example.

Select CF card instead of Internal buffer

When clicking [1], the setting menu for buffer No. 1 is displayed. Also, when clicking [2], the setting menu for buffer No. 2 is displayed. Clicking each number can show each setting menu.



Buffer numbers

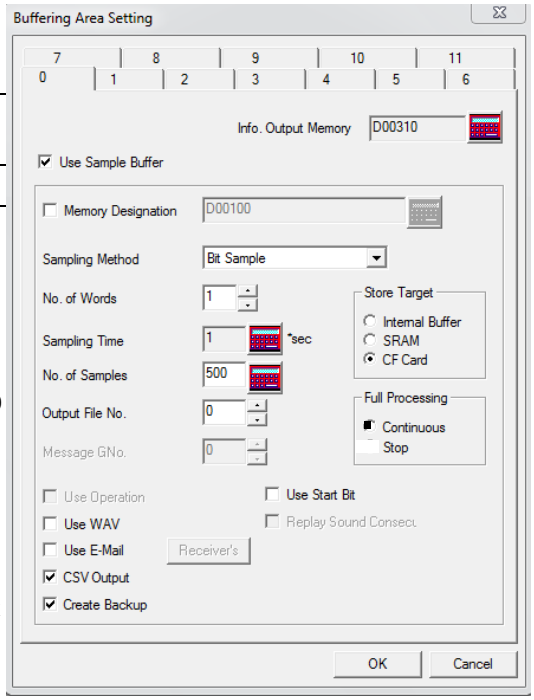
Check this box.

Uncheck this box.

specify output file as 0

Check CSV output box

Check create backup box



Buffer No. 0 Setting

1. Buffering area data is written to the memory address selected for [Info. Output] (V7 → PLC).

   The selected memory address is used for all buffer Nos. 0 to 11.

   Select “D310” for [Info. Output] in this example.

For more information, refer to P10-20.

2. Check [Use Sample Buffer]. The options for buffer No. 0 are displayed.
3. Uncheck [☐ Memory Designation].

   When this item is not checked, sampling data memory addresses are allocated following the read area memory and the sampling control memory.

For more information, refer to P10-19.

4. Select “Bit Sample” for [Sampling Method].

   Data is sampled at the edge of ON/OFF of each bit.

5. Specify the number of words to be sampled for [No. of Words].

   One word corresponds to 16 bits. When “1” is specified, data is sampled at the edge of ON/OFF of 16 bits.

   15 errors should be displayed in this example. Specify “1”. Data is thus sampled at the edge of ON/OFF of 16 bits.

   [No. of Words] “1”

6. Specify “1” for [Sampling Time]. Sampling is executed at intervals of 1 sec.

When a short time (0 or 1 sec.) is specified for [Sampling Time], the number of PLC data reading times by V7 is increased, and screen process speed will be slow. When [Memory Designation] is checked, the speed will be slower. [Memory Designation] should not be checked in such a case.

7. Specify “500” for [No. of Samples].

   The display area in this example shows up to 11 lines. Set the number of sampling times to 11 or more. (Refer to P10-12.)

Specify [No. of Samples] as a larger number than the Y size of the display area in bit sampling mode. Otherwise, the linked switches (Roll Up, Reset, etc.) will be ineffective.

8. Specify an address for storing sampled data.

   [Store Target] “CF Card”

When the V7 internal buffer is chosen for [Store Target], the sampled data is cleared by turning off the system or by bringing up the main menu on V7.

Clearing of sampled data as mentioned above can be avoided by choosing a memory card for storage. Sampled data can be saved in the memory card even in the event of a power failure, and the data can be displayed again when the system is turned on. Also, the stored data can be imported to an application software (EXCEL, for example) using our software M-CARD SFT. V7 must be available with internal or external memory cards when choosing “Memory Card” for [Store Target].

9. [Full Processing] determines what happens when the specified number of samplings has been exceeded.

   Choose “Continuous” in this example.

10. Click [OK]. The [Buffering Area Setting] dialog is closed.

Buffering Area Capacity Calculation

Calculate the capacity as indicated below when “Bit Sample” is chosen for [Sampling Method]:

For “Bit Sample”

1 sampling = 3 words

Buffering area size = Number of samples × 1 sampling

The buffering area size in this example corresponds to 1,500 words.

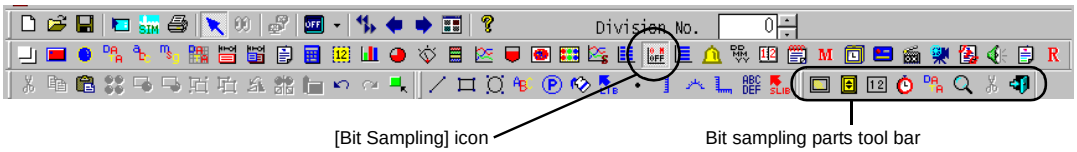
Calculation 500 × 3 = 1500

Bit Sampling Mode Selection

Set up how to indicate data stored in the buffering area.

1. Click the [Bit Sampling] icon in the tool bar.

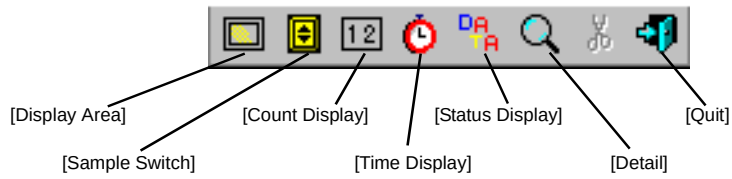
   The bit sampling parts tool bar is displayed.



2. The bit sampling parts tool bar contains the parts that are required for setting up bit sampling mode.
   - Essential parts:

     [Detail] and [Display Area]
   - Parts to be used when necessary:

     [Sample Switch], [Count Display], [Time Display], and [Status Display]



   All parts are used in this example.

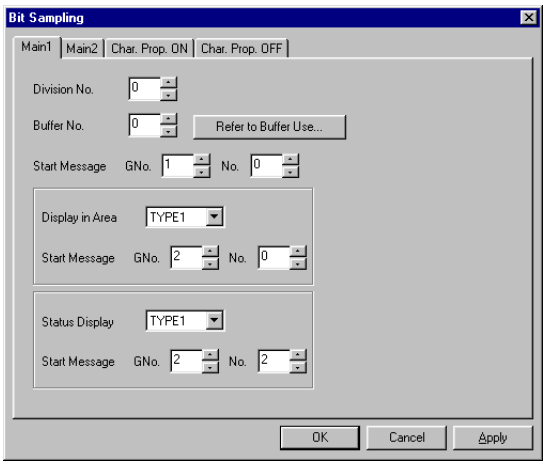
Note on Bit Sampling Parts Setting

Choose the same division number from 0 to 255 for [Detail], [Display Area], [Sample Switch], [Count Display], [Time Display] and [Status Display] so that all these bit sampling parts are linked.

[Bit Sampling] Dialog Setting

Click [Detail] in the bit sampling parts tool bar.

The [Bit Sampling] dialog is displayed.



[Main] Tab Window

1. Specify “0” for [Division No.].
2. Specify the buffer number for execution of bit sampling. Choose “0” for [Buffer No.] in this example.

   When checking the set data of the buffer, click [Refer to Buffer Use].
3. Click [Refer to Buffer Use]. The [Buffering Area Setting] dialog is displayed. Clicking [OK] after checking the dialog data returns to the [Bit Sampling] dialog.

For more information about the [Buffering Area Setting] dialog, refer to P10-4.

4. Specify the message group number and the top line number of the registered messages.

   [Start Message GNo.] “1” [No.] “0”

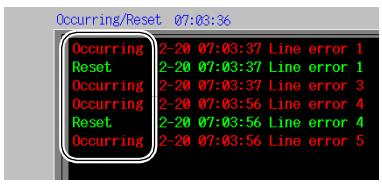
Refer to P10-2.

5. Bit activations (ON/OFF) can be indicated at the extreme left of the screen. Choose the indication method for [Display in Area].

   “Occurring” should be indicated when a bit is set (ON), and “Reset” should be indicated when a bit is reset (OFF) in this example. Choose “TYPE 1”.

   - Display in Area (TYPE 1)

     Messages registered in message editing are indicated.



When “TYPE 1” is chosen, two different messages for bit ON and OFF should be registered in message editing. When a bit is set or reset, the corresponding message is indicated.

Examples when “No” or “TYPE 0” is chosen for [Display in Area]

- TYPE 0
  <ON/OFF>, <ON> or <OFF> is shown.

<ON> 12-20 07:03:37 Line error 1
<OFF> 12-20 07:03:40 Line error 1
<ON> 12-20 07:03:43 Line error 3
<ON> 12-20 07:03:43 Line error 4
<OFF> 12-20 07:03:45 Line error 3
<ON> 12-20 07:03:50 Line error 5

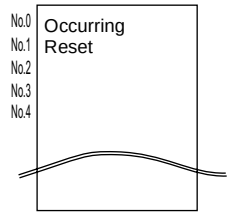
- “No”
  Nothing is shown.

12-20 07:03:37 Line error 1
12-20 07:03:40 Line error 1
12-20 07:03:43 Line error 3
12-20 07:03:43 Line error 4
12-20 07:03:45 Line error 3
12-20 07:03:50 Line error 5

6. Register messages “Occurring” and “Reset” in message editing. Use line Nos. 0 and 1 in group No. 2 in this example.

   [Start Message GNo.] “2” [No.] “0”

Message group No. 2 edit



For the message registration procedure, refer to “Message Registration for [Display in Area] and [Status Display]” on P10-11.

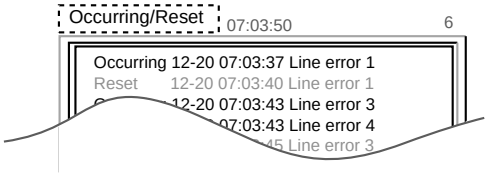
7. The status display indicates which contents are being shown: bit ON, bit OFF, or bit ON/OFF.

   “Occurring” should be indicated for bit ON, “Reset” should be indicated for bit OFF, and “Occurring/Reset” should be indicated for bit ON/OFF in this example. Choose “TYPE 1” for [Status Display].

   When “TYPE 1” is chosen, messages for bit ON, OFF, and ON/OFF should be registered in message editing. The registered messages are indicated according to bit conditions.

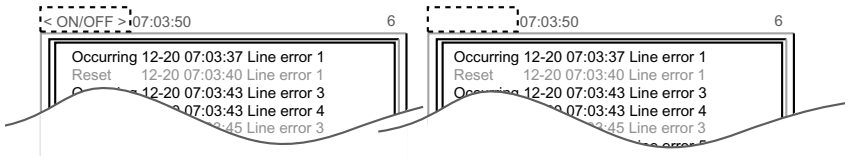
   - Status Display (TYPE 1)

     Registered messages “Occurring,” “Reset” or “Occurring/Reset” is indicated.



Examples when “No” or “TYPE 0” is chosen for [Status Display]

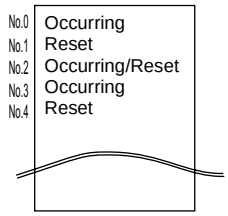
- TYPE 0
  <ON/OFF>, <ON> or <OFF> is shown.
- “No”
  Nothing is shown.



8. Register messages “Occurring”, “Reset”, “Occurring/Reset” in message editing. Use line Nos. 2, 3, and 4 in group No. 2.

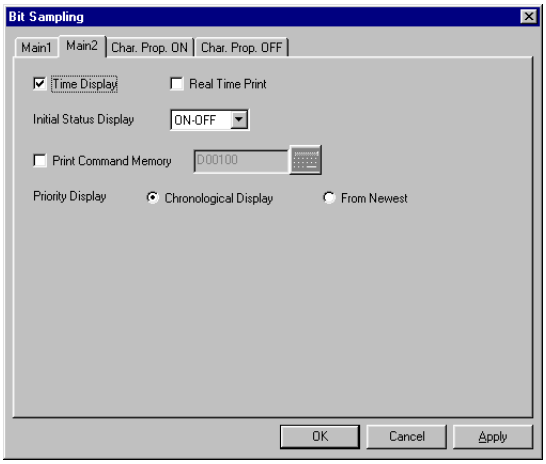
   [Start Message GNo.] “2” [No.] “2”

Message group No. 2 edit



For the message registration procedure, refer to “Message Registration for [Display in Area] and [Status Display]” on P10-11.

[Main 2] Tab Window

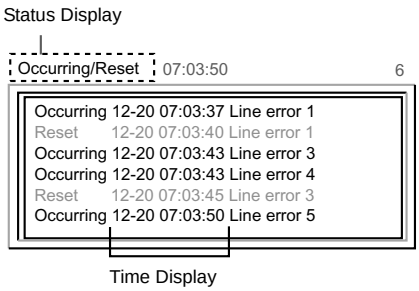


1. When you want to indicate the sampling time, check [Time Display]. It is indicated in the format of [month - day hour : minute : second]. The number of one-byte characters is 15. Check this box in this example.
2. When you want to print out the changing contents every time when the bits changed, check [Real Time Print].

   In this example, uncheck this item.

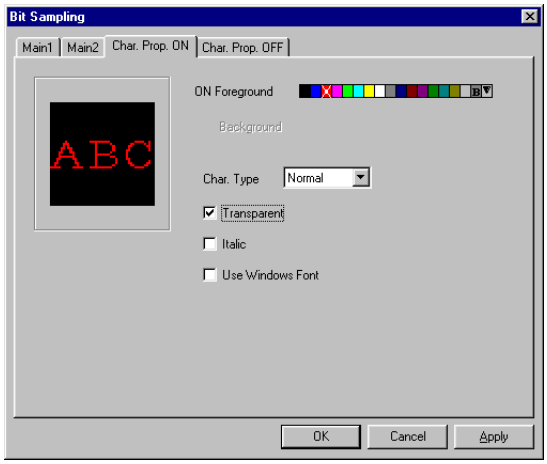
3. [Initial Status] determines the status display to be effective when the screen is opened.

   Choose “ON-OFF” in this example. ON/OFF of all bits sampled can be indicated.



4. When data of all buffers in use (buffer No. 0 in this example) should be printed by a PLC command, check the [Print Command Memory] box. Printing should be executed using the switch in this example. Uncheck the box.
5. Select the type of the priority by [Priority Display]. In this example, select [Chronological Display].

[Char. Prop. ON] Tab Window



1. Specify the ON message color to be displayed in the display area.

   [ON Foreground] Red

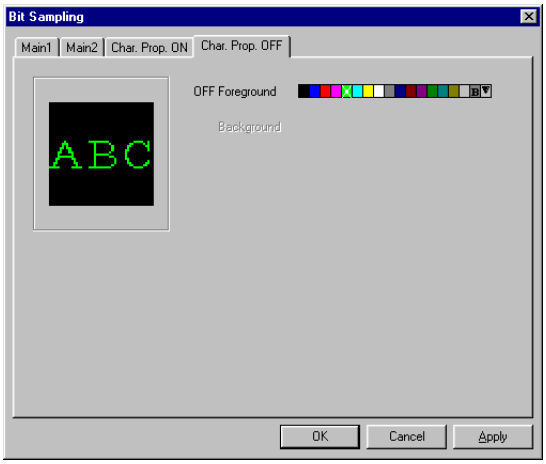
2. Set up properties for the messages in the display area. The set properties are valid for both ON and OFF messages.

   Char. Type: Bold

   Transparent: ☑ Checked

   Italic: ☐ Unchecked

[Char. Prop. OFF] Tab Window



Specify the OFF message color to be displayed in the display area.

[OFF Foreground] Green

Characters can be sized up to 1 × 1.

Click [OK] to quit the [Bit Sampling] dialog.

Message Registration for [Display in Area] and [Status Display]

Register the messages for [Display in Area] and [Status Display] in message editing.

Refer to P10-7.

1. In the section “Error Message Registration for Display”, the error messages have been registered in message group No. 1. The messages for [Display in Area] and [Status Display] are thus registered in group No. 2.

   Select [Message] from the [Item] menu. The [Message] dialog is displayed.

2. Enter “2” (group number) and click the [OK] button. The [Message [2] Edit] window is displayed. Register the messages from line No. 0.

Line No.	Message	
		Display in Area (Refer to P10-7.)
0	Occurring	Bit ON
1	Reset	Bit OFF
2	Occurring/Reset	Status Display (Refer to P10-8.)
3	Occurring	Bit ON/OFF
4	Reset	Bit ON
		Bit OFF

For message edit procedure in the message edit window, refer to “Message Registration” in “9. Displaying Messages by Setting/Resetting Bits (Relay Mode)” on P9-3.

3. Click [x] button after registration.

   The [Screen Edit] window appears.

Display Area Setting

Set up the sampled data display area.

1. Click the [Display Area] icon in the bit sampling parts tool bar. The [Display Area] dialog is displayed.

[Display Area]

2. Set up options as shown below. Place the display area at the center of the screen.

   Part selection No. 15 in file [Parts_e.V7P]

Division No.		0
In-area Prop.	Foreground	Black
	Tile	No. 0
Display area transparent		☐ Unchecked

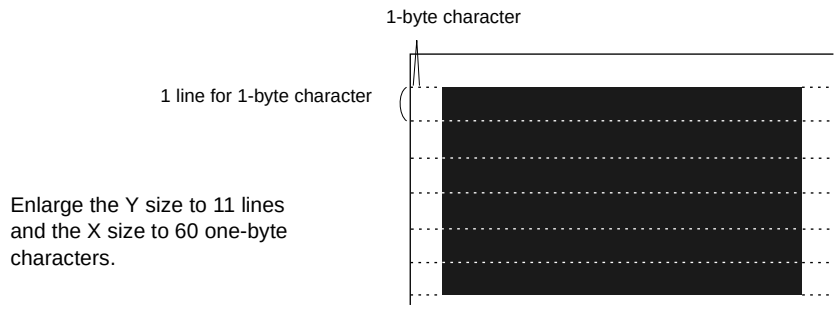
3. Modify the size of the display area.

   1) Select [Display Environment] from the [Display] menu. The [Display Environment] dialog is displayed.

      Set up the [Grid] tab window as shown below, and click [OK].

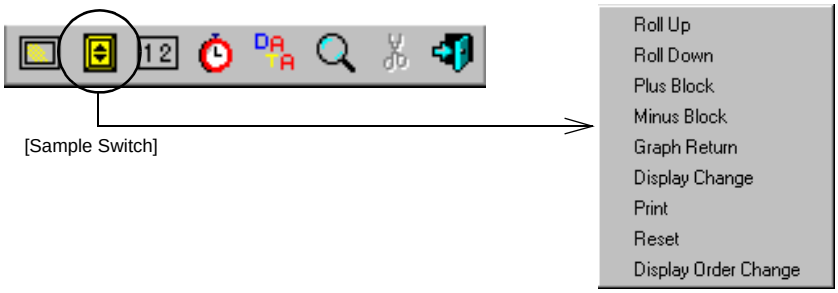
Grid Dsp.	Checked
Grid Color	Red
Grid Type	1-Byte

   2) Modify the display area size while referring to the grids shown on the screen.

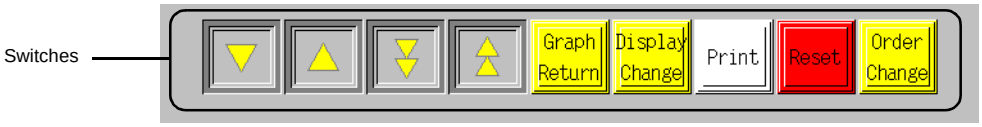


Switches for Bit Sampling

1. Click the [Sample Switch] icon in the bit sampling parts tool bar. The switches for the bit sampling mode are displayed in the drop-down menu.



2. Set up as shown below:



- Roll Up

  Part selection No. 96 in file [Parts_e.v7p]

  [Main] tab window:

Division No.	0
Draw Mode	REP
Output Memory	☐ (Unchecked)
Lamp Memory	☐ (Unchecked)
Output Action	Momentary (ignored)
Function	Roll Up

  [Character] tab window:

  (No setting)

  [Detail] tab window:

Use ON Macro	☐ (Unchecked)
Use OFF Macro	☐ (Unchecked)
Use Interlock	☐ (Unchecked)
Process Cycle	High Speed

  [Color] tab window:

Frame ON Color	Gray
ON Color	Gray
Frame OFF Color	Gray
OFF Color	Silver-color (extreme right)

- Roll Down

  Set up the options in the tab windows in the same manner as those for the Roll Up switch, except the following:

  Part selection No. 95 in file [Parts_e.v7p]

  [Main] tab window:

Function	Roll Down

- Plus Block

  Set up the options in the tab windows in the same manner as those for the Roll Up switch, except the following:

  Part selection No. 100 in file [Parts_e.v7p]

  [Main] tab window:

Function	Plus Block

- Minus Block

  Set up the options in the tab windows in the same manner as those for the Roll Up switch, except the following:

  Part selection No. 99 in file [Parts_e.v7p]

  [Main] tab window:

Function	Minus Block

- Graph Return

  Part selection No. 65 in file [Parts_e.v7p]

  [Main] tab window:

Division No.	0
Draw Mode	REP
Output Memory	☐ (Unchecked)
Lamp Memory	☐ (Unchecked)
Output Action	Momentary (ignored)
Function	Graph Return

  [Character] tab window:

No. 0	Graph
No. 1	Return

  [Char. Prop.] dialog (for No. 0 and No. 1):

Char. Type	Normal
Foreground	Black
Transparent	☑ (Checked)
Italic	☐ (Unchecked)
Rotate	Normal
Direction	RGT

[Detail] tab window:

Use ON Macro	☐ (Unchecked)
Use OFF Macro	☐ (Unchecked)
Use Interlock	☐ (Unchecked)
Process Cycle	High Speed

[Color] tab window:

ON Color	Blue
OFF Color	Yellow

- Display Change

  Set up the options in the tab windows in the same manner as those for the Graph Return switch, except the following:

  [Main] tab window:

Function	Display Change

  [Character] tab window:

No. 0	Display
No. 1	Change

- Print

  Set up the options in the tab windows in the same manner as those for the Graph Return switch, except the following:

  [Main] tab window:

Function	Sample Print

  [Character] tab window:

No. 0	Print

  [Color] tab window:

ON Color	Blue
OFF Color	White

- Reset

  Set up the options in the tab windows in the same manner as those for the Graph Return switch, except the following:

  [Main] tab window:

Function	Reset

  [Character] tab window:

No. 0	Reset

  [Color] tab window:

ON Color	Blue
OFF Color	Red

- Display Order Change

  Set up the options in the tab windows in the same manner as those for the Graph Return switch, except the following:

  [Main] tab window:

Function	Display Order Change

  [Character] tab window:

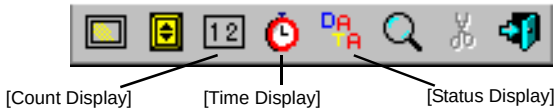
No. 0	Order
No. 1	Change

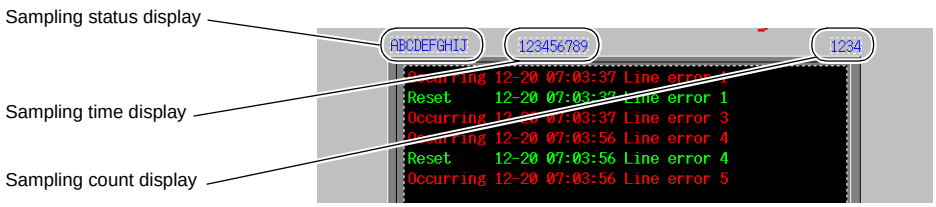
The following explains the switch functions.

Roll Up	Scrolls by one data element toward the most recent. If it cannot be held in the display area, one data element at a time scrolls into view.
Roll Down	Scrolls by one data element toward the oldest. If it cannot be held in the display area, one data element at a time scrolls into view.
Plus Block	Scrolls by one page toward the most recent.
Minus Block	Scrolls by one page toward the oldest.
Graph Return	Flashes when any of the Roll Up, Roll Down, Plus Block, and Minus Block switches is pressed. When the Graph Return switch is pressed while it is flashing, the display is restored to the most recent bit sampling data. Flashing is canceled as well as the selection.
Display Change	Changes over the sampling status display when it is set to be indicated.
Sample Print	Prints all data stored in the specified buffer numbers.
Reset	Lights up when the switch is pressed once. When it is pressed again within 2 seconds, the buffer in use is cleared, and sampling is restarted immediately. If not pressed within 2 seconds, the switch is turned off, and resetting is nullified.
Display Order Change	Changes the order of the displayed messages when the switch is pressed once. The chronological display is reversed by turns.

Bit Sampling Data Display Parts

1. Set up the [Count Display], [Status Display], and [Time Display] parts for indicating the number of samplings, the status of sampling, and the time recorded when the data was sampled.





2. Set up each display part and place it on the screen.
   - Sampling Status Display

     Part selection No. 9 in file [Parts_e.v7p]

     [Main] tab window:

Division No.	0

     [Type] tab window:

Display Function	Sampling Status Display
Bytes	10
◉ Flush L	

     [Char. Prop.] tab window:

Char. Type	Normal
Transparent	☐ (Unchecked)
Italic	☐ (Unchecked)
Rotate	Normal
Direction	RGT
Spacing	☐ (Unchecked)
Enlarge	X:1 Y:1
Foreground	Blue
Background	Silver-color

     [Detail] tab window:

Process Cycle	High Speed

   - Sampling Time Display

     Part selection No. 9 in file [Parts_e.v7p]

     [Main] tab window:

Division No.	0

[Type] tab window:

Display Function	Sampling Time Display
Digits	9
Display Type	DEC (w/o sign)
Zero Suppress	☑ (Checked)
⦿ Flush R	

[Char. Prop.] tab window:

Char. Type	Normal
Transparent	☐ (Unchecked)
Italic	☐ (Unchecked)
Char. Size	⦿ 1-Byte
Rotate	Normal
Direction	RGT
Spacing	☐ (Unchecked)
Enlarge	X:1 Y:1
Foreground	Blue
Background	Silver-color

[Detail] tab window:

Process Cycle	High Speed

Depending on the setting for [Digits], the sampling time is indicated in the following format:
8 digits or less
No display
Greater than 8 digits and less than 14 digits (both inclusive)
hour : minute : second
15 digits or greater
month - day hour : minute : second

- Sampling Count Display

  Set up the options in the tab windows in the same manner as those for the sampling time display, except the following:

  [Main] tab window:

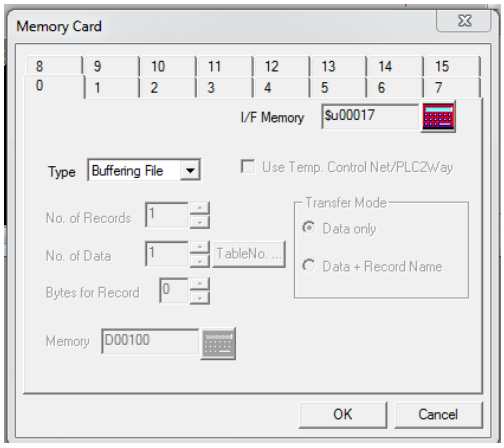
Function	Sampling Count Display
Digits	4

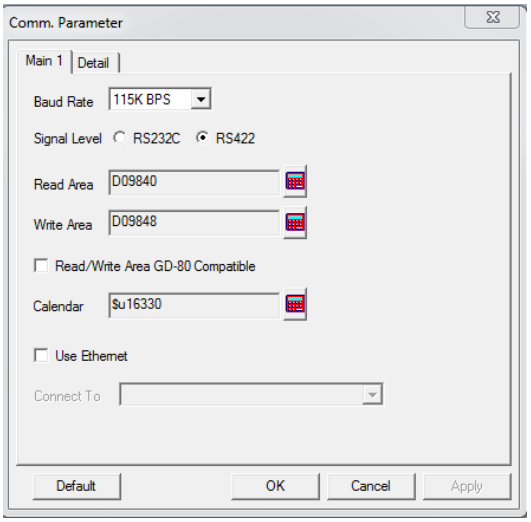
Sampling Status Display	This display indicates which contents are being shown: bit ON, bit OFF, or bit ON/OFF.
Sampling Time Display	This display indicates the last sampling time or that of the selected data element.
Sampling Count Display	This display indicates the total number of data sampled or the ordinal number of the selected data element among those sampled.

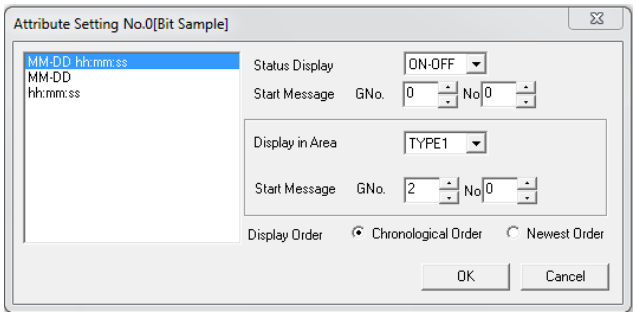
The following setings are to be ensured

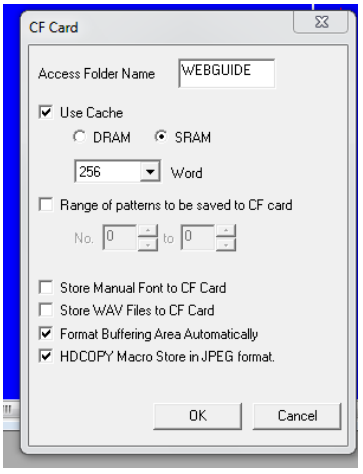
1.Attribute table 2. CF card setting 3.Memory card setting 4.Comm parameter setting

All the above setting are under system setting tool bar.









All the above setting are under system setting tool bar. Set as per above setting

Operation Check

Memory Allocation

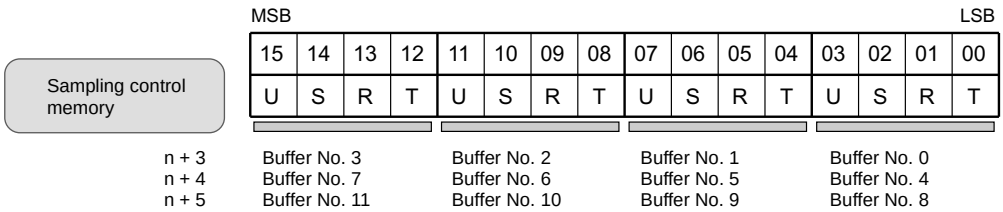
The following memory addresses are used in this example.
Read area memory address is found in comm parameter setting under system setting screen .
Read area memory address: D9840

Memory Address	Contents
D9843	Sampling control memory
D9844	Sampling data memory
D00310	Information output memory

Sampling Control Memory

When any setting is made in the [Buffering Area Setting] dialog, sampling control memory addresses are automatically allocated following the read area memory. The number of allocated words and the contents depend on the number of buffers.

Read area memory addresses: n, n + 1, n + 2 (3 words)



R: Reset

When this bit is set (1), the buffering area is cleared and no sampling occurs. When this bit is reset (0), sampling is started.

T: Trigger

This is effective only when [Bit Synchronize] is selected for [Sampling Method] in the [Buffering Area Setting] dialog.

S: Normal Operation Bit / U: Sampling Bit

This is effective only when [Alarm Function] is selected for [Sampling Method] in the [Buffering Area Setting] dialog.

Only buffer No. 0 is used in this example. Address D9843 (1 word) is allocated as the sampling control memory.

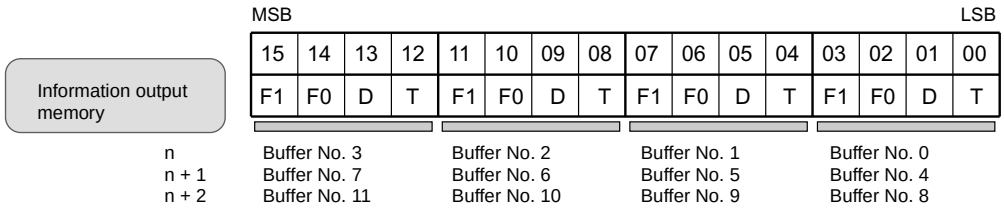
Sampling Data Memory

When [Memory Designation] is not checked in the [Buffering Area Setting] dialog, sampling data memory addresses are allocated following the sampling control memory. The buffering area size in this example corresponds to 1 words.

Information Output Memory

Buffering area information is written to the memory address chosen for [Info. Output].) (V7 → PLC)

Memory addresses and bits correspond to buffers as shown below:



F1: Specified buffer is full.

F0: Specified buffer is 90% full.

D: Specified buffer contains data.

T: Status of the input trigger is output.

Only buffer No. 0 is used in this example. Address D00310 (1 word) is allocated as the information output memory. (Refer to P10-4.)

Error Messages Corresponding to Bits

The following table indicates error messages corresponding to the sampling data memory bits respectively.

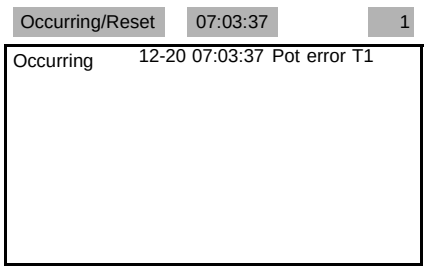
Bit	Message
D9844-00	Pot error T1
D9844-01	Pot error T2
D9844-02	Pot error T5
D9844-03	Sensor pot error T1 OS
D9844-04	Sensor pot error T2 DS
D9844-05	Sensor pot error T2 OS
D9844-06	Sensor pot error T2 DS
D9844-07	Sensor pot error T5 OS
D9844-08	Sensor pot error T5 DS
D9844-09	
D9844-10	
D9844-11	
D9844-12	
D9844-13	
D9844-14	
D9844-15	

Bit Sampling Screen Operation Check

Save the created screen.

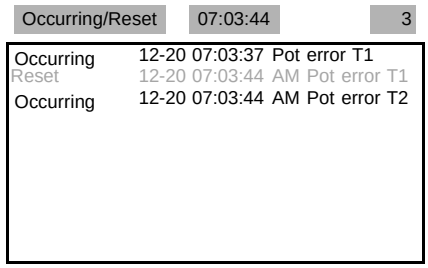
While referring to “3. Screen Data Transference”, transfer the created screen data to V7 and check that V7 operates correctly.

1. Specify “H0000" for “D9843”. Start sampling.
2. Set corresponding bit for “D9844”. (eg.Bit 0 is set.)

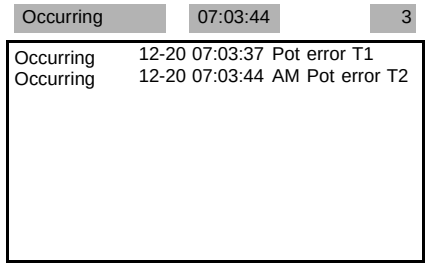


3.Set bit 1 and reset bit 0 of D9844 word

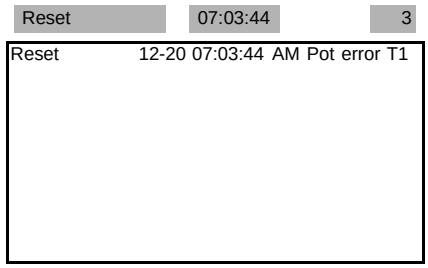
(Bit 0 is reset, and bit 1 is set.)



4. Press the [Display Change] switch. “Occurring/Reset” changes to “Occurring” in the status display.



5. Press the [Display Change] switch again. “Occurring” changes to “Reset” in the status display.



6. Monitor the information output memory.

   “H0002” is entered for “D00310”.

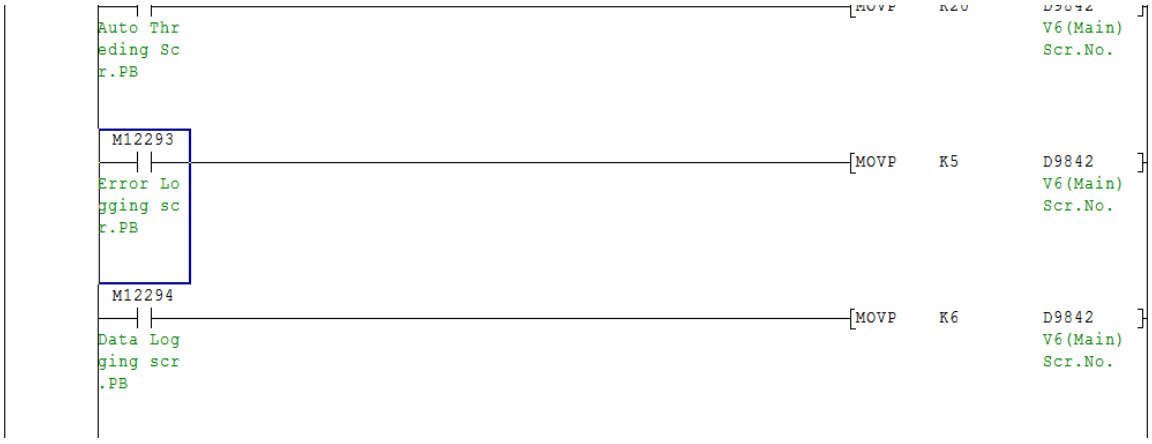
   It is confirmed that buffer No. 0 contains data.

7. Press the [Reset] switch. The switch lights up. Press it again within 2 seconds. Data sampled in buffer No. 0 as well as the messages in the display area are cleared.
8. Monitor “D00310”. “H0000” is entered. It is confirmed that the buffering area contains no data.
9. Bring up 12 or more messages on the screen. Check that the [Roll Up], [Roll Down], [Plus Block], [Minus Block], and [Graph Return] switches operate as intended. (Refer to P10-16.)

PLC Programming modification

1. Add error logging screen in main screen and mention it as address D12293.

2. On pressing the error logging screen move to screen 5. Error logging is in screen 5.



3. Error logging programming is in P350 Call program.

Call function is activated only when the machine detect signal is detected.

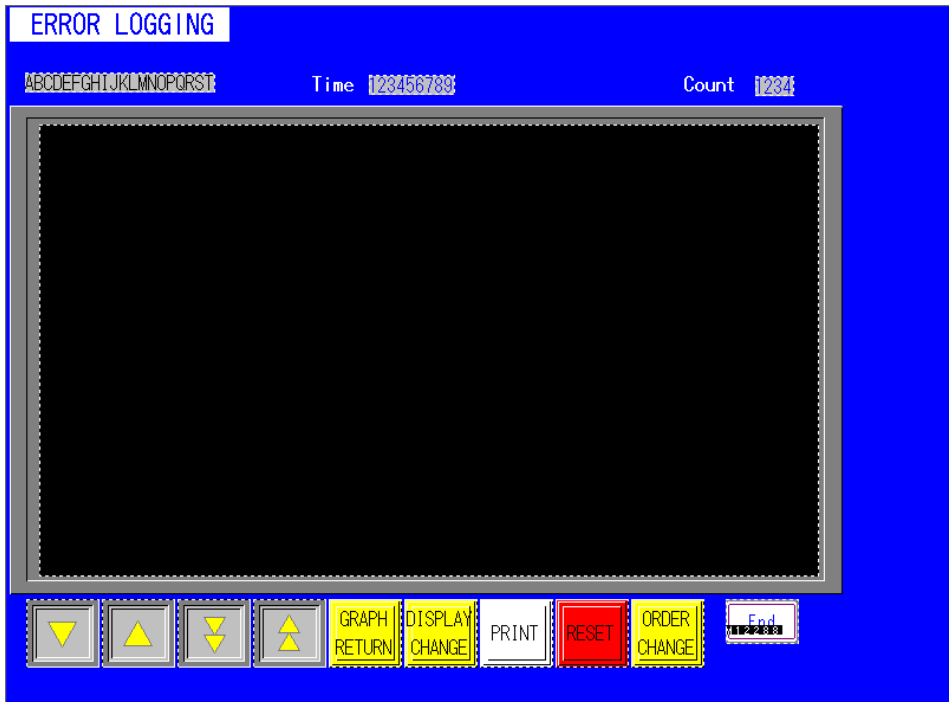
Here,

Starting condition - Machine running detect signal B110

Stopping Condition - Deceleration under 4 IPH (B11F)

Hence, Sampling takes places during running only. This is done to avoid Initial duplicate errors.

4. Add end button in screen 5 with address M12288. no modification needed as this address program is done already.

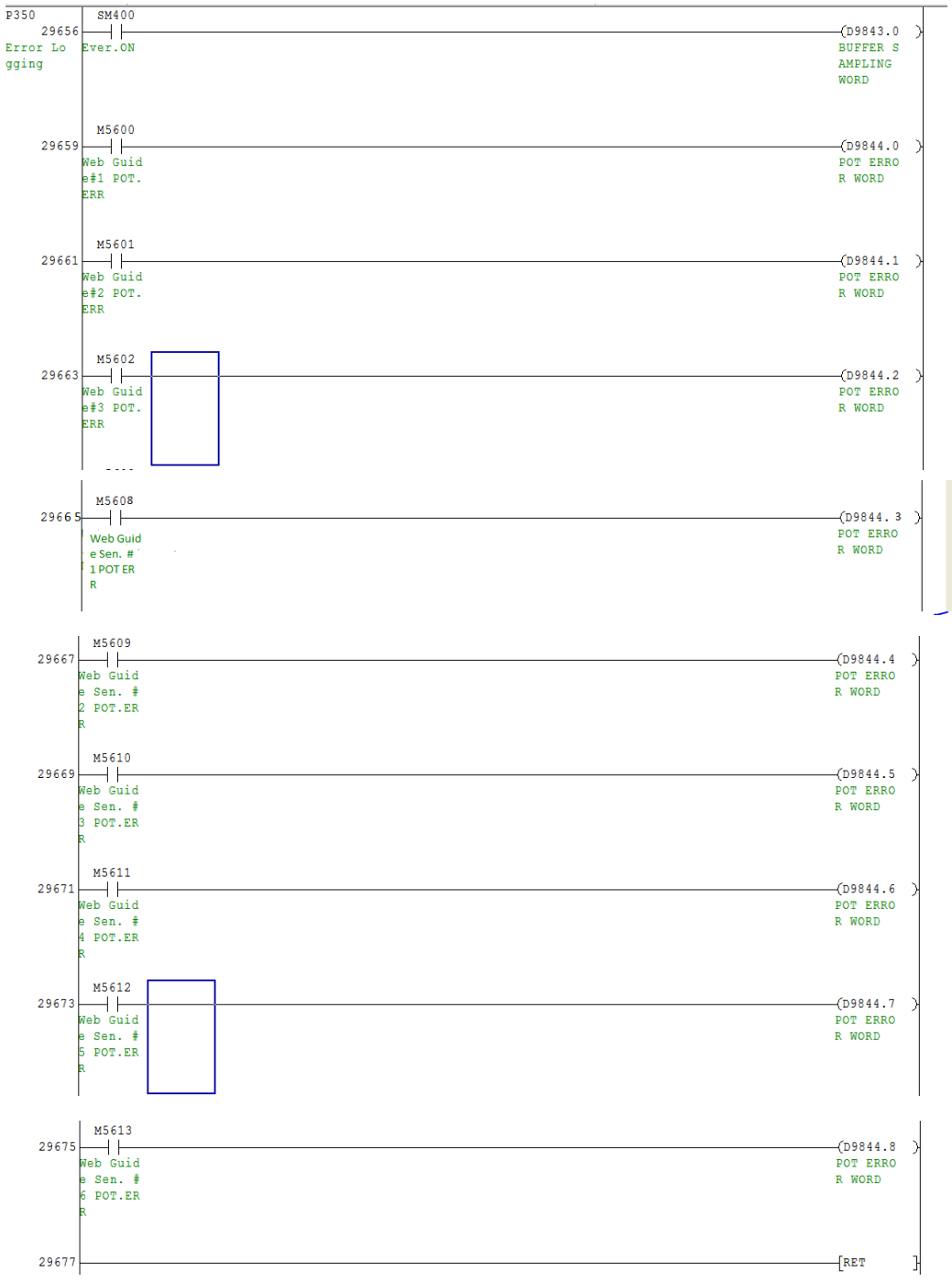


5.Pot error coils for T1,T2,T5 and sensor pot error coils for T1 OS,T1 DS, T2 OS, T2 DS, T5 OS, T5 DS are at M5600, M5601,M5602, M5608, M5609, M5610, M5611, M5612 and M5613 respectively.

6. So when M5600 is set at the time of machine running , D9844.0 bit is set. hence corresponding message "pot error T1" is displayed at the sampled time. Sampled time and date are stored in the screen. count is also displayed.

7. Similary when corresponding M coils are set/reset corresponding bit are set/reset displaying Occuring/Reset function.

LADDER PROGRAM



Project cost

Software - NiL

Hardware - 1 CF card (Buffalo 256mB)