
Foreword

This user's manual describes the Symbol Editor's handling precautions, functions, operating procedures, and other important information for use of the software. To ensure correct use, please read this manual thoroughly during operation. After reading this manual, keep it in a convenient location for quick reference in the event a question arises during operation. Please keep this manual in a convenient location in case questions arise during operation. Furthermore, for handling precautions, functions, and operating procedures for the DL series, or for the handling and operating procedures of Windows, please see the manuals for those respective products.

Notes

- The contents of this manual are subject to change without prior notice as a result of improvements in performance or functionality. Display contents illustrated in this manual may differ slightly from what actually appears on your screen.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest YOKOGAWA representative as listed on the back cover of this manual.
- Copying or reproduction by any means of all or any part of the contents of this manual without permission is strictly prohibited.
- This software creates data files compatible with the following DL series.
DL850V, DLM2000 series, DLM4000 series, DL6000/DLM6000 series, SB5000 series, and DL9500/DL9700 series.

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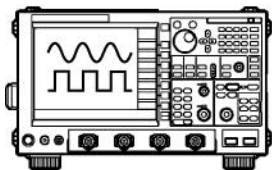
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Product Overview

Functions

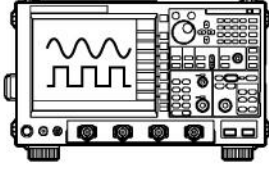
SB5000



Physical value symbol definition data for serial bus analysis

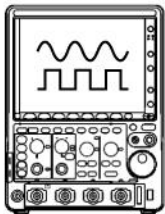
+
Logic symbol definition data

DL9700/DL9500



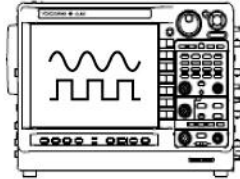
Logic symbol definition data

DLM2000/DLM4000

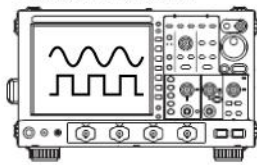


Physical value symbol definition data for serial bus analysis

DL850V

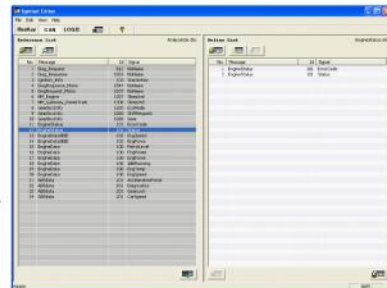


DL6000/DLM6000

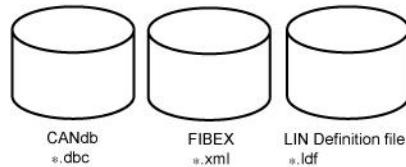


Save
Load
Edit

Symbol Editor



Load reference file



1. The following are included in symbol definition files.
- Physical value symbol definition data for serial bus analysis
 - Logic symbol definition data

Create and Edit Physical Value Symbol Definition Files for DL850V, DLM2000, DLM4000, DL6000/DLM6000, and SB5000 Series Serial Bus Analysis

You can create physical value symbol definition files for serial bus analysis. Created files can be saved for use on the DL850V, DLM2000, DLM4000, DL6000/DLM6000, and SB5000. Saved files can be loaded and edited.

Import CANdb Files

You can load CANdb files and create physical value symbol definition files for the DL850V, the SB5000, the DLM2000, the DLM4000, and the DL6000/DLM6000.

Import LIN Definition Files

You can load LIN definition files and create physical value symbol definition files for the DL850V.

Import FIBEX Files

You can load FIBEX files and create FlexRay physical value symbol definition files for the SB5000.

Create and Edit Logic Symbol Files for the SB5000, DLM6000, DL9700, and DL9500 Series

You can create logic symbol definition files that can be used on the SB5000, DLM6000, DL9700, and DL9500 series. Created files can be saved for use on the SB5000, DLM6000, DL9700, and DL9500 series. Saved files can be loaded and edited.

Search for Registered Messages

You can search created or loaded data for registered messages.

System Requirements

Personal Computer

A personal computer (PC) is required that is running Windows XP SP2 or later, or Windows Vista, or Windows 7, having a Pentium 4, 2 GHz or faster CPU and 512 MB or more (1 GB or more recommended) of memory.

Display

Resolution: SVGA/XGA (XGA or higher recommended)
Colors: 65536 or more

Mouse

A mouse that is compatible with Windows XP SP2 or later, or Windows Vista, or Windows 7.

DL Series and Firmware Able to Load Symbol Definition Files (*.sbl)

DL9700/DL9500 series:	Version 4.00 or later
SB5000 series:	All firmware versions
DLM2000 series:	All firmware versions
DLM4000 series:	All firmware versions
DL6000/DLM6000 series:	All firmware versions
DL850V:	All firmware versions

Important Information for Users

Disclaimers

By downloading and installing this software, the customer agrees to all of the following disclaimers.

- Yokogawa bears no liability for any problems occurring as a result of downloading or installing this software.
- Yokogawa bears no responsibility for any damage caused directly or indirectly as a result of using this software.
- This software is provided free of charge, however no unlimited warranty against software defects exists, nor is any claim made that the product is free of all defects whatsoever. Also, Yokogawa is not always able to repair defects (“bugs”) in, or respond to questions or inquiries about this software.
- Yokogawa reserves all rights to this software, including but not limited to all property rights, ownership rights, and intellectual property rights.
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Usage Precautions

- If the PC enters a standby mode (a feature that may have been installed), this software may not be able to run continuously. Be sure to turn off the PC’s standby mode.
- Microsoft corporation’s MSXML 6.0 SP1 must be installed to use the FIBEX file import function. The MSXML 6.0 SP1 installer is included in your symbol editor package. Follow the instructions to install the program.
The OS that must be installed is Microsoft Windows XP Service Pack 2 (SP2).
- Windows Installer 3.1 or later is required to install MSXML 6.0 SP1.
If necessary, you can download it from the Microsoft Download Center.

Note:

Regarding FIBEX(Field Bus Exchange Format)
FIBEX is one kind of common data base (format) used in bus systems such as FlexRay developed by the ASM consortium when exchanging data and information between nodes (ECU, etc.). It defines data (messages and symbols), information about the sending/receiving nodes, and other information in the xml language.

Installing and Uninstalling the Software

Installing

1. Download Symbol Editor from the Yokogawa Web site. Save the file to an appropriate location on the PC.
2. The downloaded file is compressed. Decompress the file using a suitable decompression program (such as WinZip). The "Symbol Editor" folder is created.

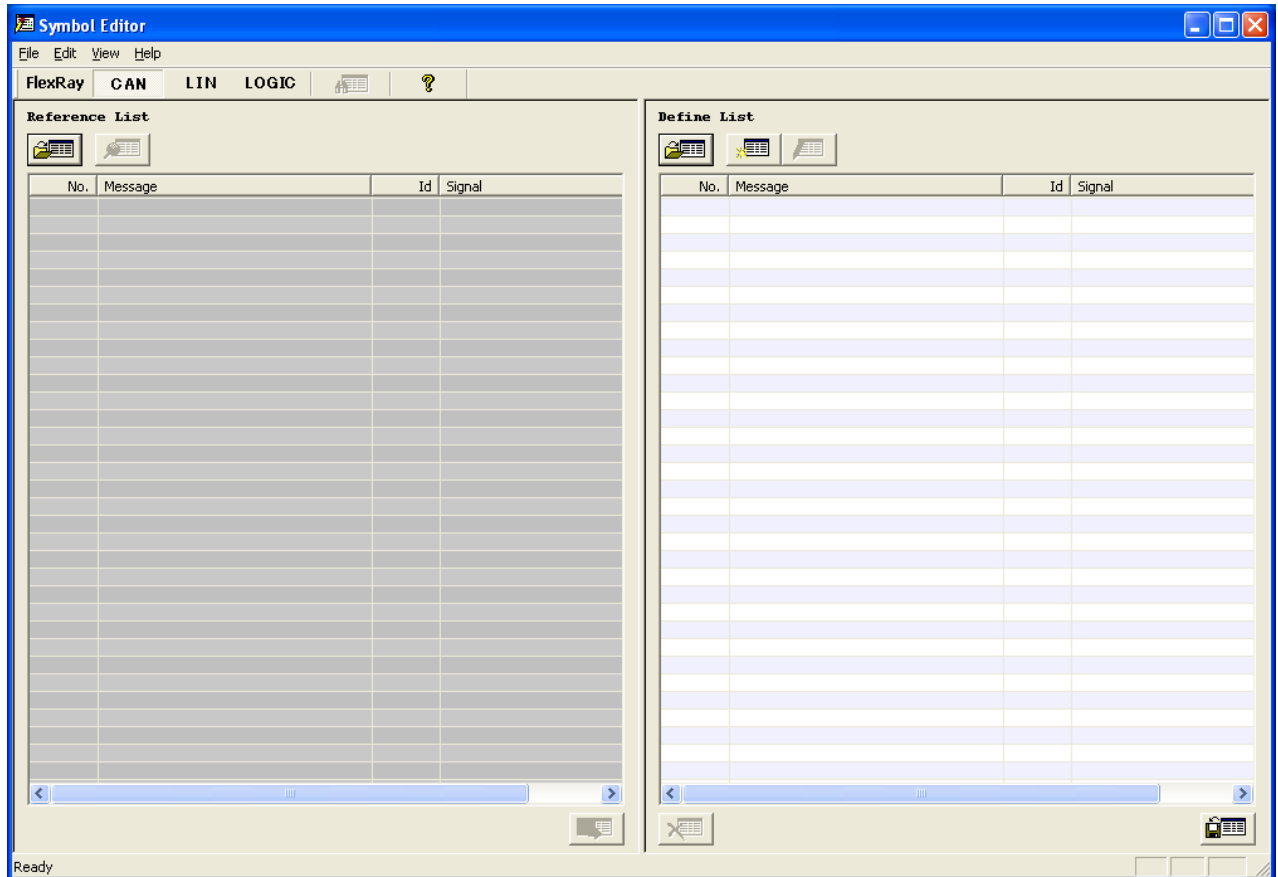
Uninstalling

1. Delete the Symbol Editor folder and all of its subdirectories.

1.1 Starting and Exiting the Program

- **Starting the Program**

Double-click **Symbol Editor.exe**. The program starts, and the window below appears.



For loading files as reference data.

For editing definition files.

- **Exiting the Program**

Click **File > Exit**.

1.2 Basic Operations in the Main Screen

The screenshot shows the Symbol Editor software interface. The main window is divided into two panes: 'Reference List' on the left and 'Define List' on the right. The 'Reference List' pane shows a table of messages with columns 'No.', 'Message', 'Id', and 'Signal'. The 'Define List' pane shows a similar table for the current definition file. The interface includes a menu bar (File, Edit, View, Help) and a toolbar with icons for various operations. Callouts provide detailed explanations for these operations.

Changes the data to edit

- FlexRay
- CAN
- LOGIC
- LIN

Search: Searches for messages registered in the list

Displays the Help Window

Open: Loads symbol definition files (*.sbl)

New definition: Creates new messages

Edit definition: Edits registered messages

Sort messages
Click a title without No. in the table to sort in ascending or descending order

Reference List (Comfort.dbc)

No.	Message	Id	Signal
1	TP_Dashboard	1541	data
2	Diag_Request	1792	NoName
3	Diag_Response	1536	NoName
4	DiagResponse_Motor	1537	data
5	DiagResponse_DoorLeft	1543	data
6	DiagRequest	1542	data
7	TP_Console	1540	data
8	NM_Gateway	1053	SleepInd
9	NM_DOORright	1052	SleepInd
10	NM_DOORleft	1051	SleepInd
11	NM_Console	1050	SleepInd
12	DOOR_r	497	WN_Position
13	DOOR_l	496	WN_Position
14	Console_2	417	Phase
15	Console_2	417	Active
16	Console_2	417	Light
17	Console_1	416	WN_right_up
18	Console_1	416	WN_right_down
19	Console_1	416	WN_left_up
20	Console_1	416	WN_left_down
21	Console_1	416	Mirror_r2d
22	Console_1	416	Mirror_r2u
23	Console_1	416	Mirror_r2r
24	Console_1	416	Mirror_r2l
25	Console_1	416	Mirror_l2d
26	Console_1	416	Mirror_l2u
27	Console_1	416	Mirror_l2r
28	Console_1	416	Mirror_l2l
29	Gateway_2	273	Voltage
30	Gateway_2	273	PetrolLevel
31	Gateway_2	273	EngSpeed
32	Gateway_2	273	CarSpeed
33	Gateway_2	273	EngineTemp

Define List (ConfortTetsData.sbl)

No.	Message	Id	Signal
1	Diag_Request	1792	NoName
2	Diag_Response	1536	NoName
3	DiagResponse_Motor	1537	data
4	DiagResponse_DoorLeft	1543	data
5	DiagRequest	1542	data
6	TP_Console	1540	data
7	NM_Gateway	1053	SleepInd
8	NM_DOORright	1052	SleepInd
9	NM_DOORleft	1051	SleepInd
10	NM_Console	1050	SleepInd

Show definitions: Displays messages

Add definition:
Adds messages to the definition list

Reference: Load CANdb file (*.dbc)
Load LIN definition file (*.ldf)
Load FIBEX file (*.xml)
Load symbol definition file (*.sbl)

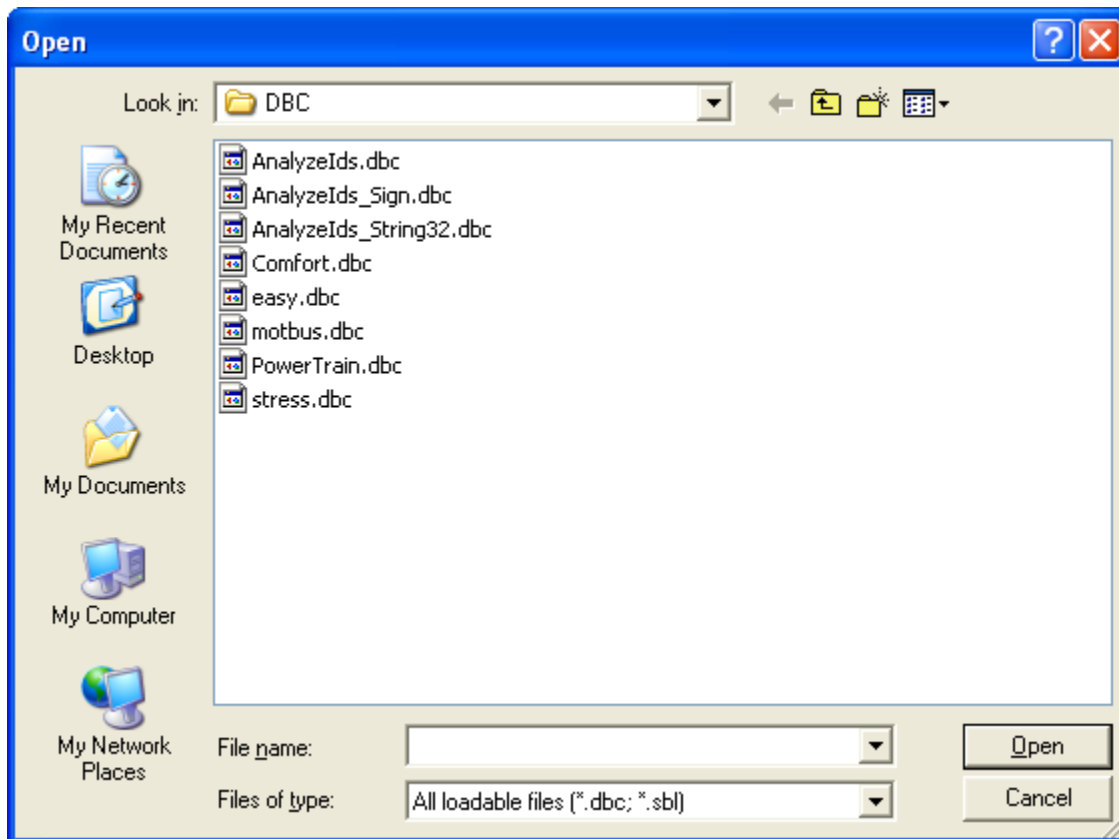
File name :
The file name to be editing

Delete definition:
Deletes messages from the definition list

Save definition:
Saves the symbol definition file

2.1 Loading Reference Files

1. In the Reference list, click , or click **File > Reference** to display the Open dialog box.



2. Type the name of file you wish to open in the File name box or select one from the list, then click **Open**. The messages are displayed in the reference list.

Note:

- If the edit mode is CAN, CANdb (*.dbc) and symbol definition (*.sbl) files can be loaded.
 - If the edit mode is FlexRay, FIBEX (*.xml) and symbol definition (*.sbl) files can be loaded. FIBEX files are limited to FIBEX v2.x-based FlexRay definitions.
 - If the edit mode is LOGIC, symbol definition (*.sbl) files can be loaded.
 - If the edit mode is LIN, LIN definition (*.ldf) and symbol definition (*.sbl) files can be loaded.
 - CANdb files can contain up to 5000 messages.
 - FIBEX files can contain up to 2048 messages.
 - LIN definition files can contain up to 3840 messages.
-

2.2 Displaying Definitions

1. In the reference list, select a message then click , or click **Edit > View** to display a dialog box for displaying definitions.

[FlexRay] Message and signal parameters

Message name:

Frame format:

Message id: ☒ Decimal ☐ Hex


Byte count:

Base cycle: Cycle repetition:

Signals

Signal name:

Bit order:

Start bit: 

Bit count:

Value type: ☒ Little(Intel) ☐ Big(Motorola)

Scaling

Factor: Maximum:

Offset: Minimum:

Unit:

OK キャンセル

[LOGIC] Message parameters

Message name:

Group:

Bit count:

Bit pattern

Hex:

Bin:

Don't care = "x"

OK キャンセル

[CAN] Message and signal parameters

Message name:

Frame format:


Message id: ☒ Decimal ☐ Hex

Byte count:

Signals

Signal name:

Bit order:

Start bit: 

Bit count:

Value type: ☒ Little(Intel) ☐ Big(Motorola)

Scaling

Factor: Maximum:

Offset: Minimum:

Unit:

OK キャンセル

[LIN] Message and signal parameters

Message name:


Message id: ☒ Decimal ☐ Hex

Byte count:

Checksum:

Signals

Signal name:

Start bit: 

Bit count:

Value type: ☒ Little(Intel) ☐ Big(Motorola)

Scaling

Factor: Maximum:

Offset: Minimum:

Unit:

OK Cancel

Note:

- The contents of the dialog box differs depending on the edit mode.
- The contents of messages do not change.

CAN, FlexRay, LIN

The usage of bits within the message is shown to the right of the Start bit and Bit count boxes.

Meanings of colors

☐ White: Unused bit

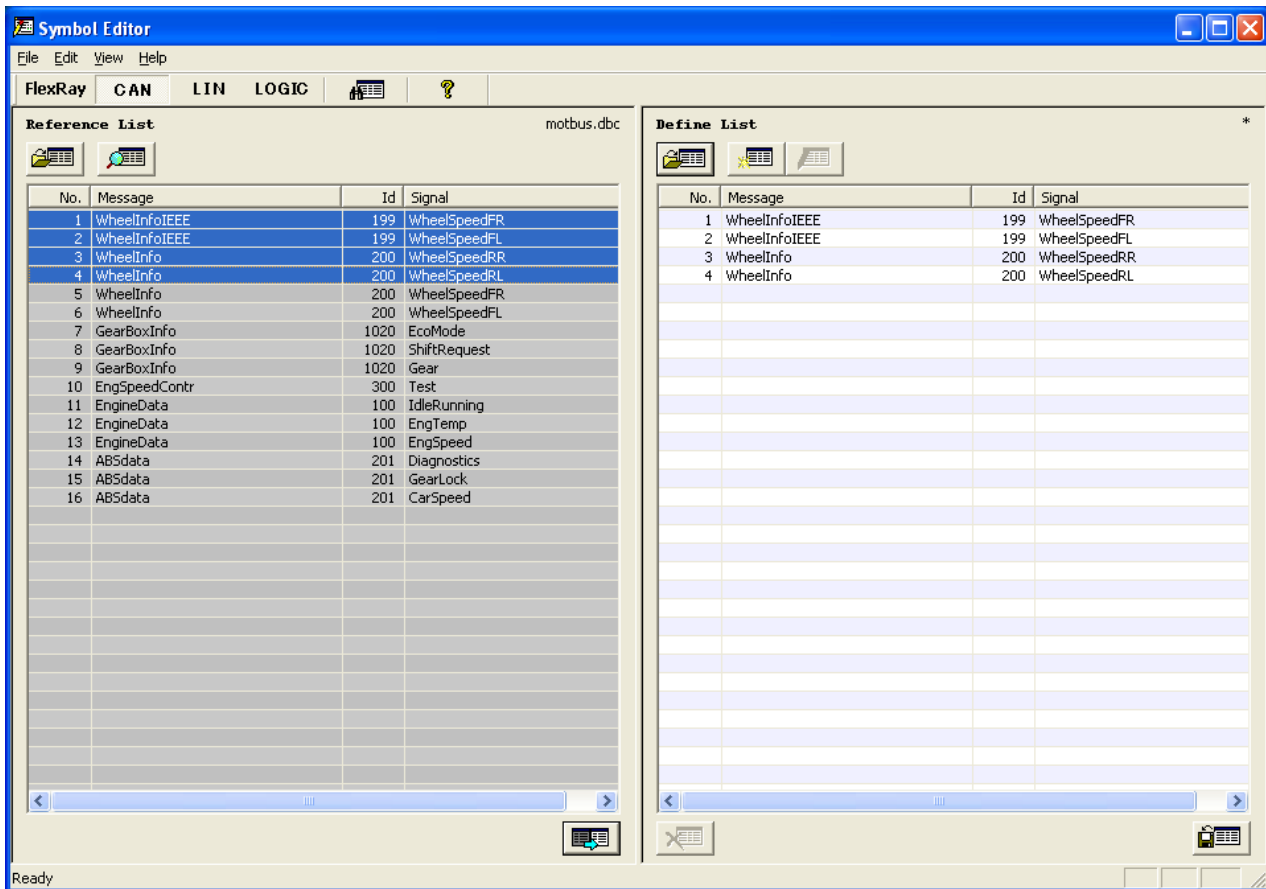
☒ Green: Bit used by signal in question

☐ Gray: Bit used by other signal (4 gradations express multiple signals)

- If the FIBEX definition encoding type is something other than IDENTICAL/LINER, the start bit, bit count, and scaling are blank.
 - For FlexRay, if the byte count is greater than 8, up to 64 bits in the position of the byte corresponding to the start bit is displayed.
-

2.3 Adding Definitions

1. In the reference list, select a message then click , or click **Edit > Add**. A message is added to the definition list.

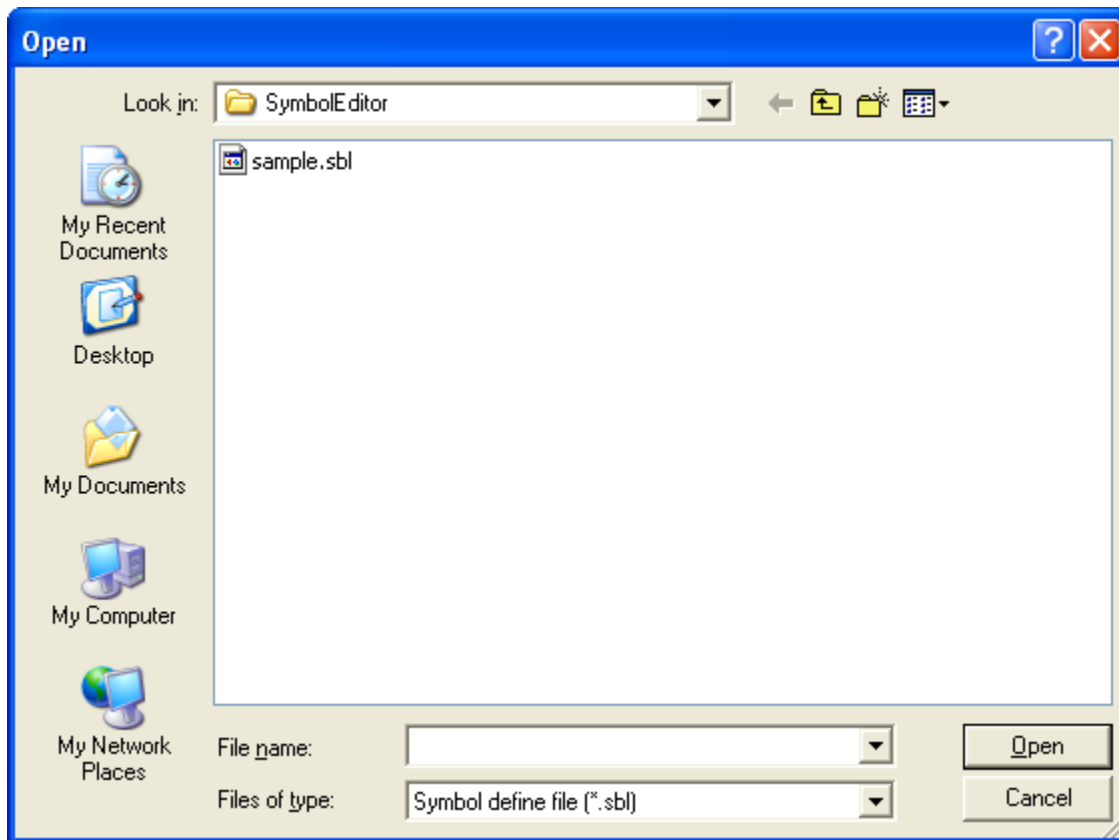


Note:

- You can select one message or multiple messages to add at a time.
- To select multiple messages, hold down the Ctrl key while clicking each message.
- When multiple messages are selected, all are added to the definition list together.
- You can add definitions by dragging messages from the reference list to the definition list.
- Up to 500 messages can be registered in the definition list.
- Definitions cannot be added for the following signals.
 - (1) If the definition overlaps with another signal
 - (2) If part of the display screen is blank
 - (3) If the encoding type is something other than INDENTICAL/LINNER
 - (4) If the encoding information (bit order, start bit, bit count, or byte order specification) is invalid

3.1 Loading Definition Files

1. In the definition list, click , or click **File > Open** to display the Open dialog box.



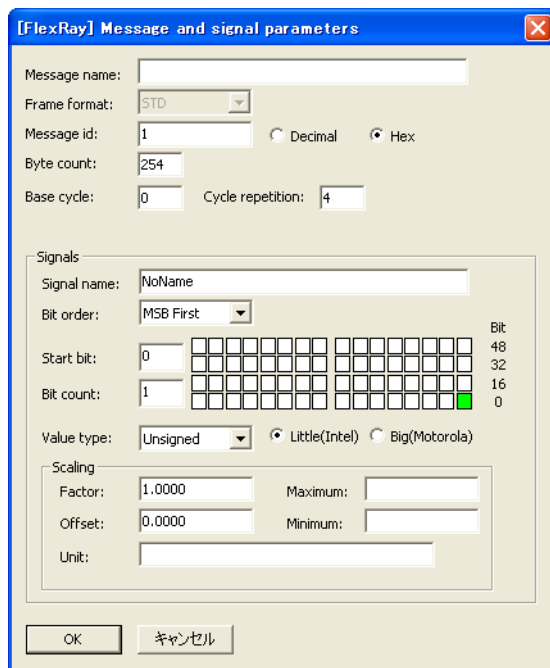
2. Type the name of file you wish to open in the File name box or select one from the list, then click **Open**. The messages are displayed in the definition list.

Note:

- Symbol definition files (*.sbl) are loaded.
-

3.2 New Definitions

1. In the definition list, click , or click **Edit > New** to display the dialog box for new definitions.



[FlexRay] Message and signal parameters

Message name:

Frame format:

Message id: ☐ Decimal ☒ Hex

Byte count:

Base cycle: Cycle repetition:

Signals

Signal name:

Bit order:

Start bit:

Note:

- The contents of the dialog box differs depending on the edit mode.
- The characters that can be used in the Message name, Signal name, and Unit boxes are: 0 to 9, A to Z, a to z, %, _, (,), -, and /
- You may not enter a message name that is already assigned to a message.
- Up to 500 messages can be registered in the definition list.

CAN

- You may not enter a signal name that already exists within a message.
- Message ID setting range
If Frame format = STD, 0 to 2047 (7FF hex)
If Frame format = XTD, 0 to 536870911 (1FFFFFFF hex)
- The byte count setting range is 0 to 8.
If 0, the signal cannot be set.
- The signal start bit setting range is 0 to (byte count × 8 – 1).
- The signal bit count setting range is 1 to (byte count × 8 – start bit).
- The maximum number of characters that can be used in the Message name, Signal name, and Unit boxes is 32.
- When creating a new definition, you can copy previously defined message and signal settings from the Message name, Message id, and Signal name lists.
- The usage of bits within the message is shown to the right of the Start bit and Bit count boxes.

Meanings of colors

☐ White: Unused bit

☒ Green: Bit used by signal in question

☐ Gray: Bit used by other signal (4 gradations express multiple signals)

You can click or drag to select.

LIN

- You may not enter a signal name that already exists within a message.
- The message id setting range is 1 to 63 (3F hex)
- The byte count setting range is 0 to 8.
If 0, the signal cannot be set.
- The signal start bit setting range is 0 to (byte count × 8 – 1).
- The signal bit count setting range is 1 to (byte count × 8 – start bit).
- The maximum number of characters that can be used in the Message name, Signal name, and Unit boxes is 32.
- When creating a new definition, you can copy previously defined message and signal settings from the Message name, Message id, and Signal name lists.
- The usage of bits within the message is shown to the right of the Start bit and Bit count boxes.

Meanings of colors

☐ White: Unused bit

☒ Green: Bit used by signal in question

☐ Gray: Bit used by other signal (4 gradations express multiple signals)

You can click or drag to select.

FlexRay

- You may not enter a signal name that already exists within a message.
- The message id setting range is 1 to 2047 (7FF hex)
- The byte count setting range is 0 to 254.
If 0, the signal cannot be set.
- The signal start bit setting range is 0 to (byte count × 8 – 1).
- The signal bit count setting range is 1 to (byte count × 8 – start bit).
- The setting range for the base cycle is 0 to (cycle repetitions – 1).
- The setting range for the cycle repetition is 1 to 64.

The send schedule for messages in FlexRay is determined by the base cycle and cycle repetition.

Base cycle: In communication cycles (0 to 63), specify the cycle at which the first message is sent.

Cycle repetition: Specify an interval in numbers of cycles starting from the base cycle at which messages are sent.

Ex. 1) Base cycle=3, Cycle repetition=4

The cycle count: 3, 7, 11, ...59, 63 is defined as the message send schedule.

Ex. 2) Base cycle=0, Cycle repetition=1

The entire cycle count: 0, 1, 2, ..., 63 is defined as the message send schedule.

-
- The maximum number of characters that can be used in the Message name, Signal name, and Unit boxes is 32.
 - When creating a new definition, you can copy previously defined message and signal settings from the Message name, Message id, and Signal name lists.
 - The usage of bits within the message is shown to the right of the Start bit and Bit count boxes.

Meanings of colors

☐ White: Unused bit

☒ Green: Bit used by signal in question

☐ Gray: Bit used by other signal (4 gradations express multiple signals)

Up to 64 bits from the byte position corresponding to Start can be used.

You cannot click or drag the mouse to select.

LOGIC

- You cannot create an identical bit pattern to one that already exists in the same group.
 - The maximum number of characters that can be used in the Message name box is 16.
-

1001

- 

FlexRay


LOGIC

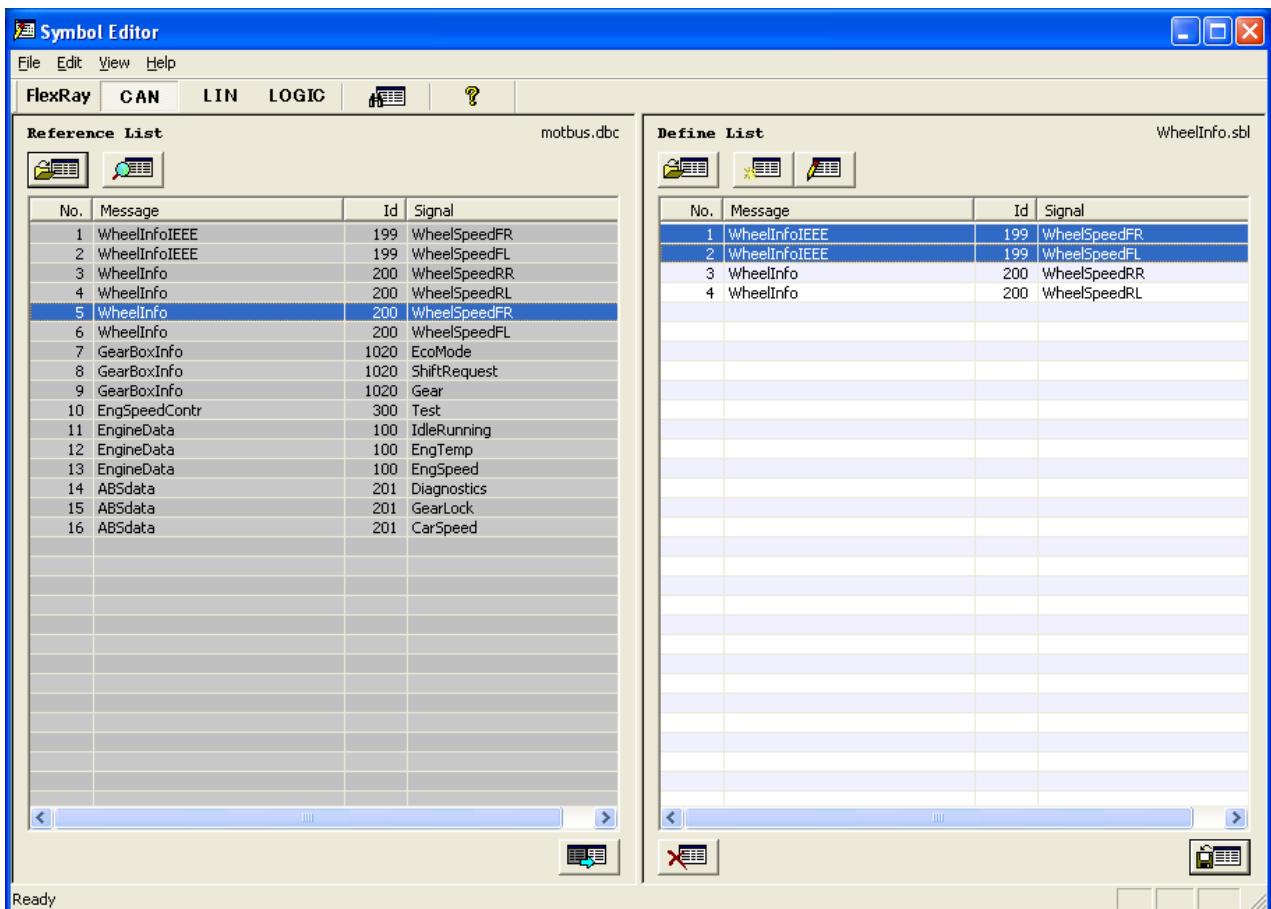
CAN

LIN

For precautions when editing definitions, see "Note" in section 3.2.

3.4 Deleting Definitions

1. In the definition list, select messages and click , or click **Edit > Delete**. The selected messages are deleted from the definition list.

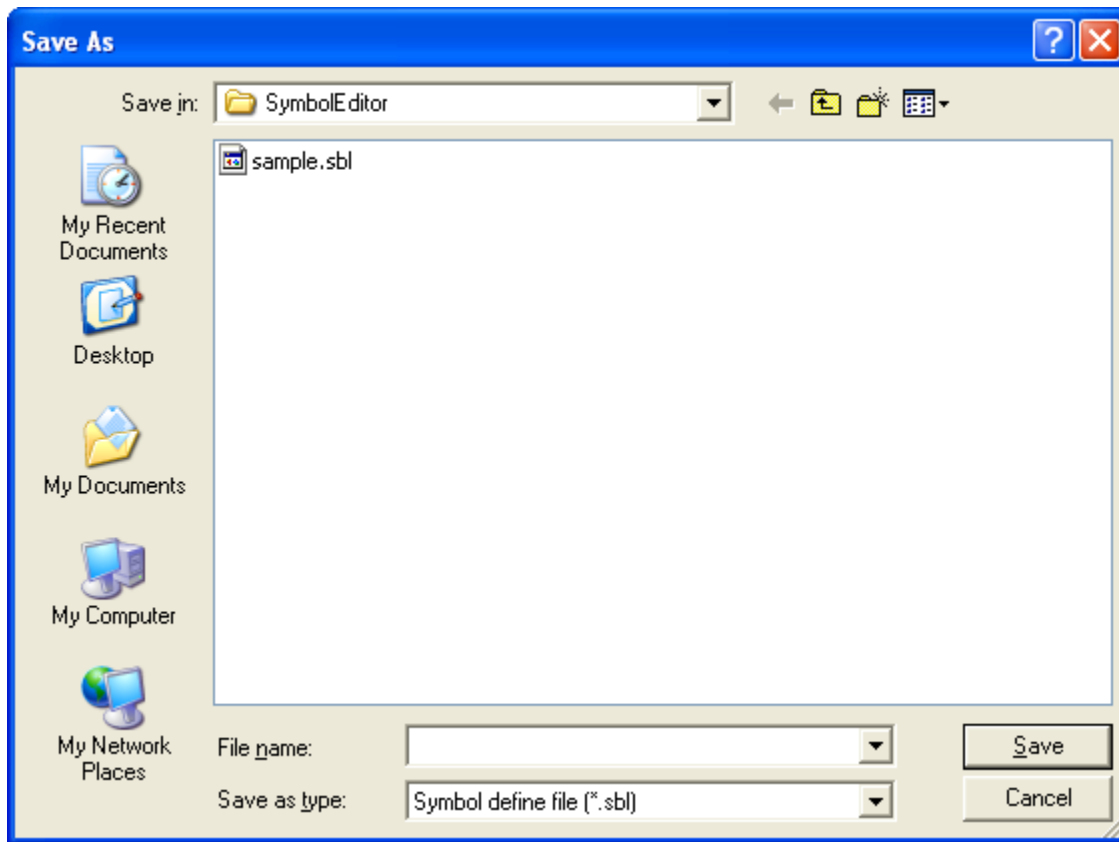


Note:

- You can select one message or multiple messages to delete at a time. To select multiple messages, hold down the Ctrl key while clicking each message. When multiple messages are selected, all can be deleted from the definition list together.

3.5 Saving Definitions

1. In the definition list, click , or click **File > Save** to display the Save As dialog box.



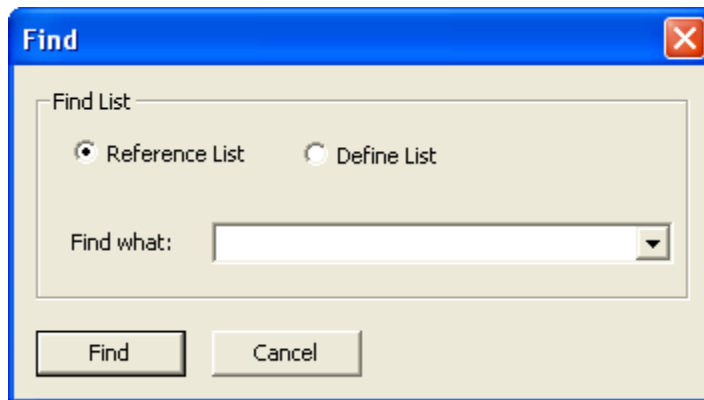
2. In the File name box, type the name under which you wish to save the file or select a file from the list, then click **Save**. The contents of the definition list are saved to the file.

Note:

- You can save symbol definition files (*.sbl).
-

4.1 Searching for Messages

1. Click , or click **Edit > Search** to display the Find dialog box.



2. Enter the string you wish to search for in the Find what box, then click Find. The matching location in the specified list is selected and displayed.

Note:

- You can select from a history of previously entered search strings in the list.
-

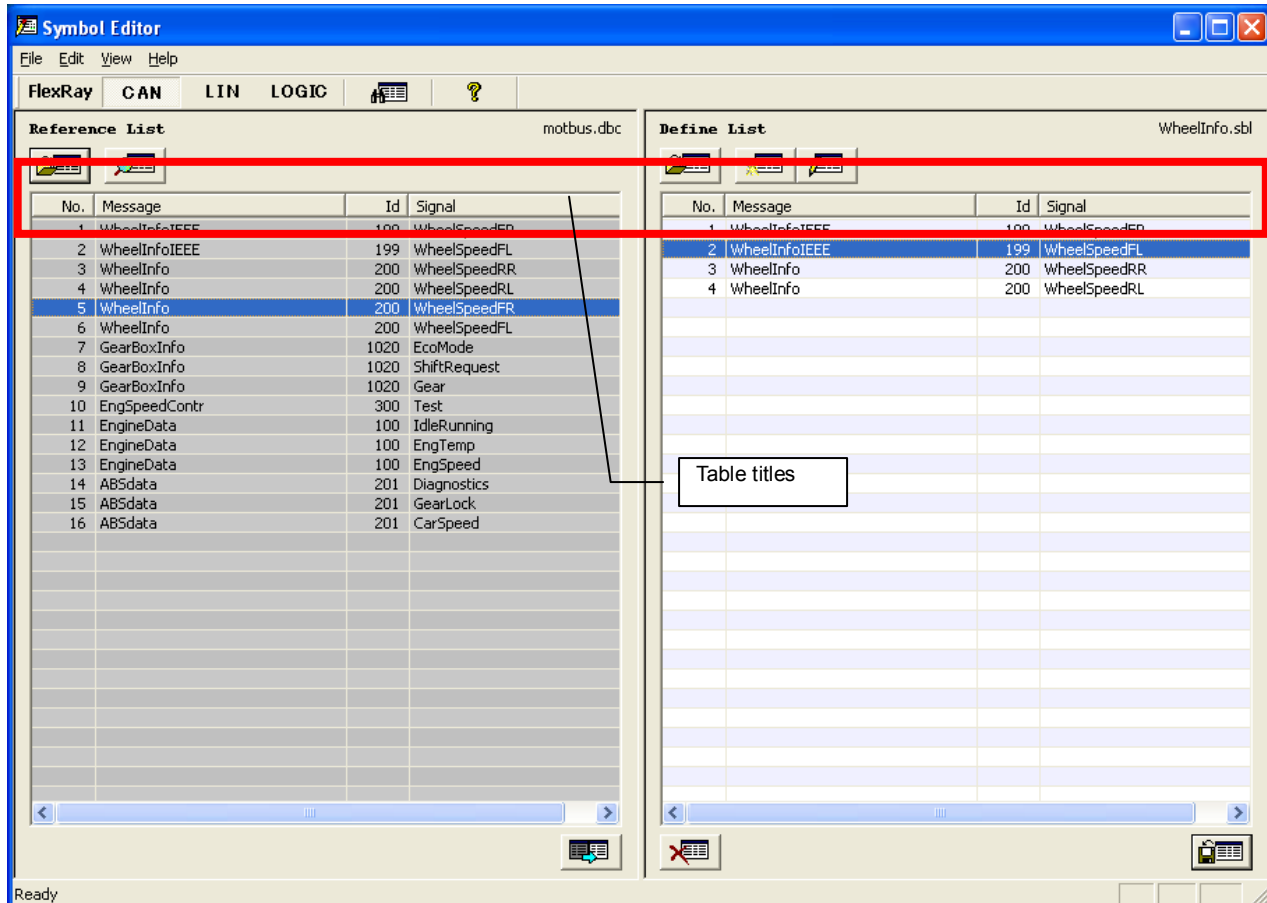
4.2 Selecting or Sorting All Items in the List

• Selecting All Items in the List

1. Click **Edit > All** to select all items in the active list.

• Sorting All Items in the List

1. Click a column title without No. to sort. Toggles between ascending and descending sort order.



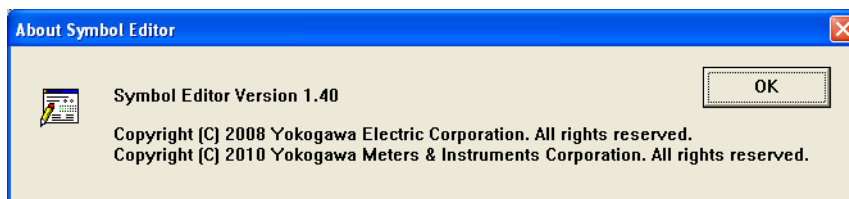
Note:

- When sorted, ▲ (ascending) or ▼ (descending) is indicated in the title.
- You can change the order of the messages by dragging them to any location in the definition list.

5 Other Functions

• Version Information

1. Click **Help** > **About** to display version information.



• User's Manual

1. Click , or click **Help** > **User's Manual** to display the user's manual.

Note:

- Adobe Reader by Adobe Systems is required to open PDF files. You can download Adobe Reader from the following Web page.
<http://www.adobe.com/>
-

• Viewing the Yokogawa Electric Web Site

1. Click **Help** > **YOKOGAWA Web site** > **Test & Measurement**, or click **Help** > **YOKOGAWA Web site** > **Symbol Editor**. The Yokogawa Web site appears.

Note:

If your PC is connected to the Internet, the Yokogawa Web site is displayed.

Test & Measurement:	The Yokogawa Test & Measurement home page is displayed.
Symbol Editor:	The product page is displayed, containing the latest product information including information on version upgrades.
