

# **Application Traffic Monitor Operation Manual**

**Eighth Edition**

- This is an operation manual of MD1230B-20, MD1230B-29, MP1590B-20, and MP1590B-29.
- For safety and warning information, please read this manual before attempting to use the equipment.
- Additional safety and warning information is provided in MD1230B Data Quality Analyzer Operation Manual, and MP1590B Network Performance Tester Operation Manual. Please also refer to one of these documents before using the equipment.
- Keep this manual with the equipment.

**ANRITSU CORPORATION**

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## Symbols used in manual



### **DANGER**

This indicates a very dangerous procedure that could result in serious injury or death if not performed properly.



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### **CAUTION**

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This indicates warning or caution. The contents are indicated symbolically in or near the triangle.



This indicates a note. The contents are described in the box.



These indicate that the marked part should be recycled.

Application Traffic Monitor  
Operation Manual

12 August 2003 (First Edition)  
10 October 2012 (Eighth Edition)

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## CE marking



### 1. Product Model

Option:	MD1230B-20 Application Traffic Monitor, MD1230B-29 Application Traffic Monitor, MP1590B-20 Application Traffic Monitor MP1590B-29 Application Traffic Monitor
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### 2. Applied Directive and Standards

When the above options are installed in the main frame shown below, the applied directive and standards of these options are conformed to those of the main frame.

Main frame:	MD1230B Data Quality Analyzer, MP1590B Network Performance Tester
-------------	--

PS: About main frame

The kind of main frame (a measuring apparatus) will be to increase.  
Please, contact us about the newest information of the main frame.

## C-tick Conformity marking

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### C-tick marking



#### 1. Product Model

Option:	MD1230B-20 Application Traffic Monitor, MD1230B-29 Application Traffic Monitor, MP1590B-20 Application Traffic Monitor MP1590B-29 Application Traffic Monitor
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Please, contact us about the newest information of the main frame.



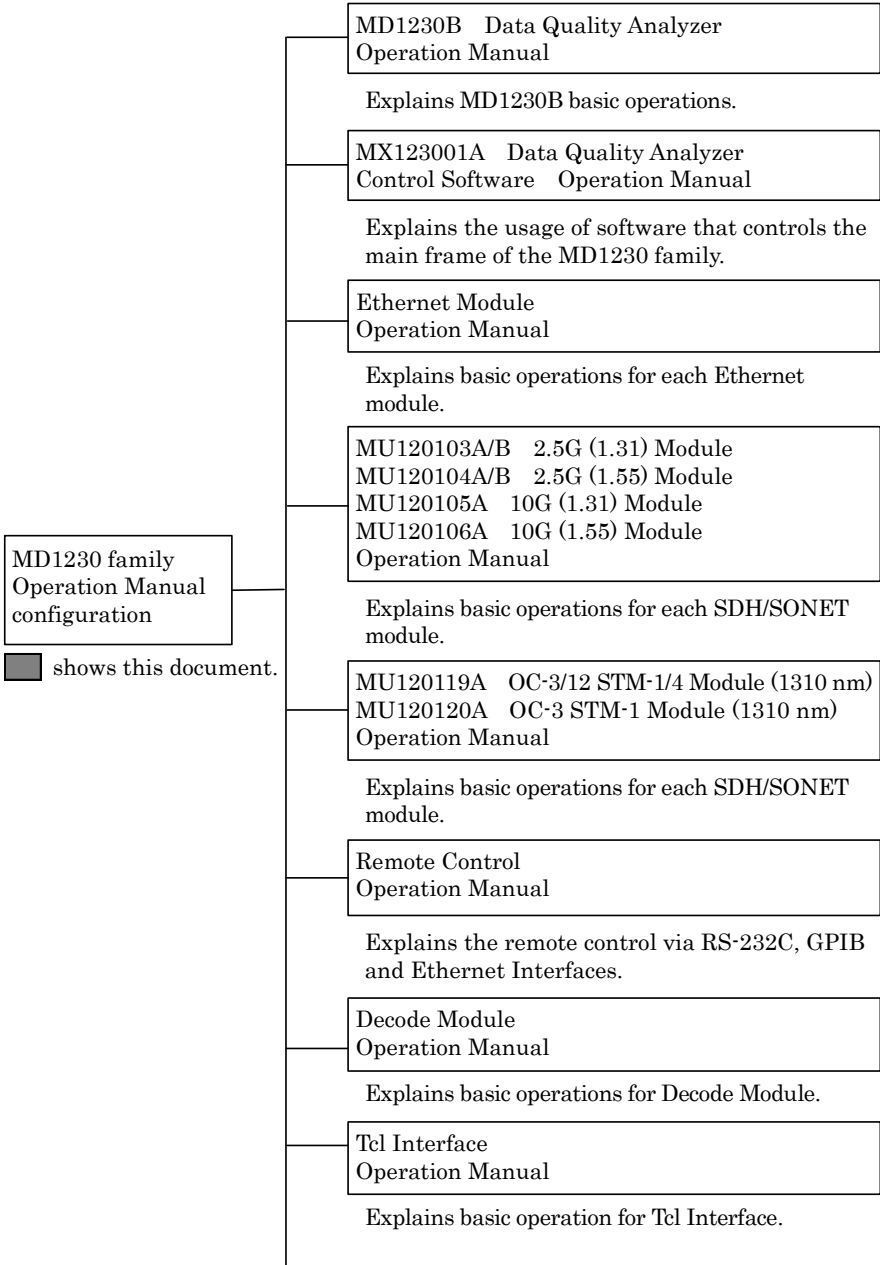
# About This Manual

This operation manual contains those of the MD1230 family and MP1590B.

**Note:**

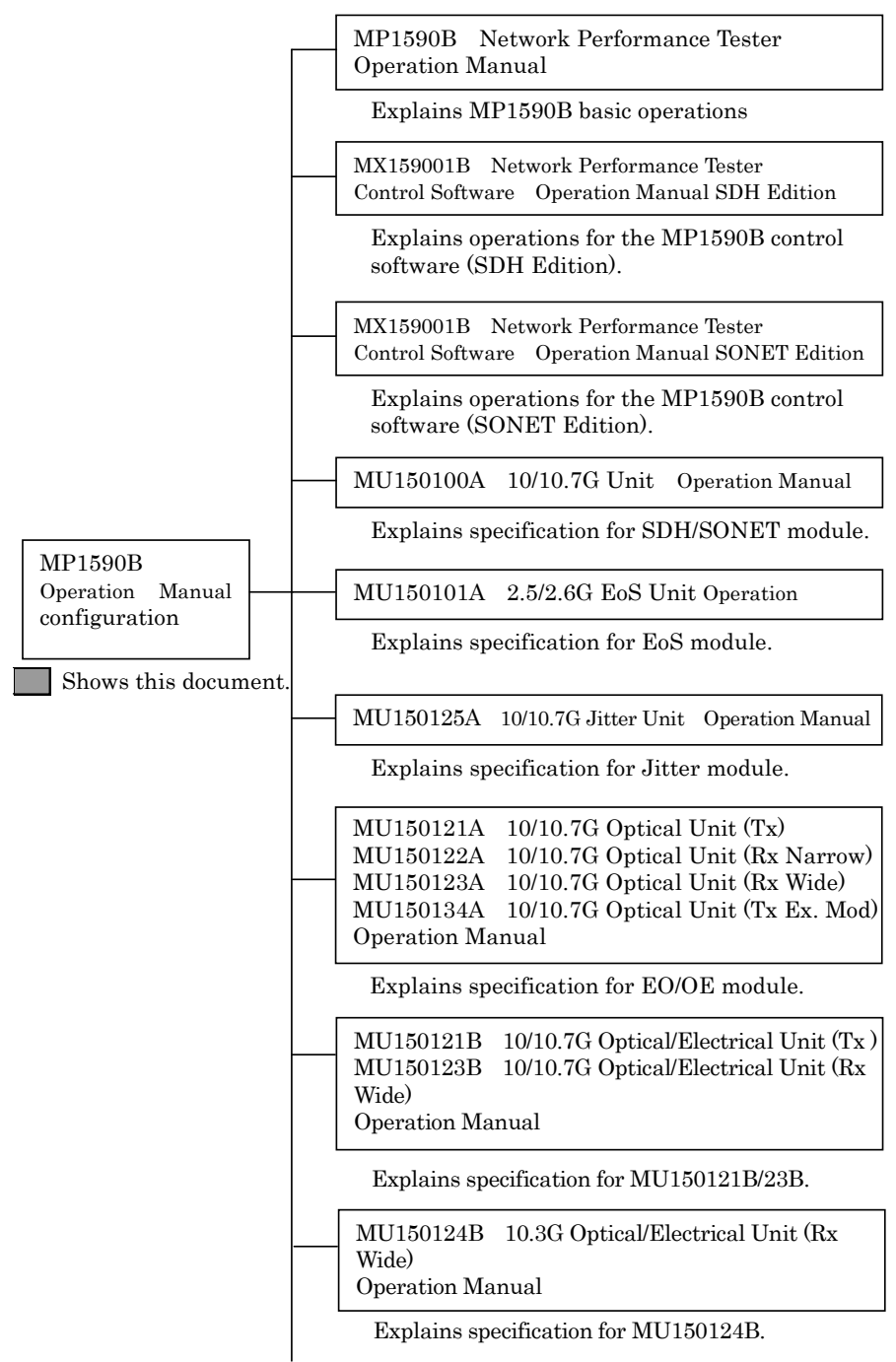
The MD1230 family is the generic name of the MD1230B Data Quality Analyzer and its modules.

The MD1230 family Operation Manual contains those of the main unit, control software, modules, remote control and options as shown below.



	Expert Analysis Module Operation Manual	Explains basic operation for the Expert Analysis Module.
	Application Traffic Monitor Operation Manual	Explains operation for the software that monitors traffics on Ethernet.
	MD1230B-26 PPPoE Operation Manual	Describes how to operate the software for measuring traffic on PPPoE.

MP1590B Network Performance Tester operation manual consists of the main unit, control software, modules, remote control and options shown below.



	<div>Ethernet Module Operation Manual</div> <div>Explains basic operations for each Ethernet module.</div>
	<div>MP1590B Network Performance Tester Remote Control Operation Manual</div> <div>Explains the remote control via RS-232C, GPIB and Ethernet Interfaces.</div>
	<div>MP1590A/B-30 High Precision Jitter Analysis Operation Manual</div> <div>Explains specification for MP1590A/B-30.</div>
	<div>Application Traffic Monitor Operation Manual</div> <div>Explains operation for the software that monitors traffics on Ethernet.</div>

This operation manual covers the following equipment and software:

<b>Model Name</b>	<b>Product Name</b>	<b>Option Name of Corresponding Application Traffic Monitor</b>
MD1230B	Data quality analyzer	MD1230B-20 MD1230B-29
MP1590B	Network performance tester	MP1590B-20 MP1590B-29
MX123001A	Data quality analyzer control software	—
MX159001B	Network performance tester control software	—

In this manual, the MD1230B, and MP1590B are referred to as “main unit.”

The application traffic monitor option is referred to as “this option.”

The MX123001A and MX159001B are referred to as “control software.”

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# Chapter 1 Overview

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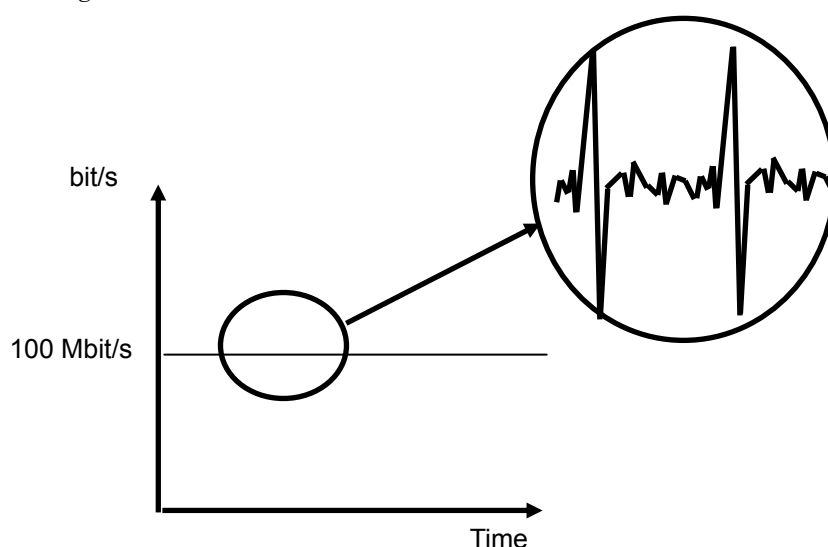
This chapter provides a function overview and features of the Application Traffic Monitor.

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## 1.1 Product Overview

The application traffic monitor targets control of the MU120112A/21A/22A/31A/32A/38A module installed in the main unit, and monitors the traffic intensity of packet flowing through on Ethernet interface at a resolution of 1 ms, and displays a fluctuation of counted values on the graph.

As shown in Figure 1.1-1, a traffic that seems to be stable at 100 Mbit/s may include sudden large fluctuation when measuring at a higher resolution. By using this option, a variation of traffic intensity can be measured at more detailed level that cannot be obtained by an existing measuring instrument.



**Figure 1.1-1 Function overview**

In addition to the traffic intensity monitoring function, a variety of counter measurements and packet capturing function are available, enabling analysis of bursting traffic variation factors.

The Application Traffic Monitor can be used from a PC connected to the main unit via a network by using the control software.

The Application Traffic Monitor becomes available by adding the option to the MD1230B or MP1590B.

- The option 20 can use the Application Traffic Monitor function via Gigabit Ethernet. This option is supported by the modules MU120112A, MU120121A/122A, and MU120131A/132A.
- The option 29 can use the Application Traffic Monitor function via 10 Gigabit Ethernet. This option is supported by the module MU120138A.



## 1.2 Features


### Real-time monitoring

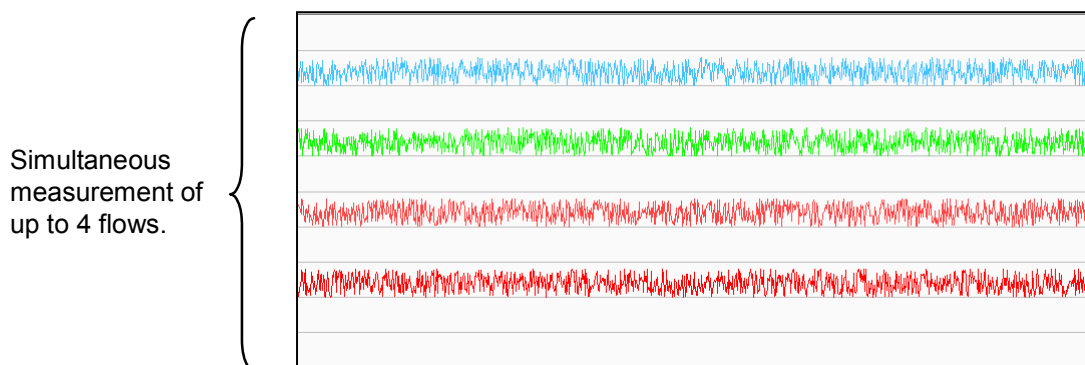
The main unit can monitor the rate of traffic (up to 4 flows<sup>\*1</sup>) transferred on a network, with high-resolution<sup>\*2</sup> and in real-time<sup>\*3</sup>.

<sup>\*1</sup>: The maximum number of flows per port that can be measured is 2 for the MU120112A module, and 4 for the MU120121A/22A/31A/32A/38A module.

<sup>\*2</sup>: The measurement resolution is 1 ms.


<sup>\*3</sup>: For buffering the measurement data, the delay of about 5 s is accompanied between measurement and display.

 For details on monitoring, refer to Section 3.1 “Application Traffic Monitor Screen”.




**Figure 1.2-1 Features**


The user can define the type of traffic to be monitored by setting the filtering conditions.

 For details on setting the filtering condition, refer to Section 3.2 “Setting Flow to Be Measured”.

### Logging

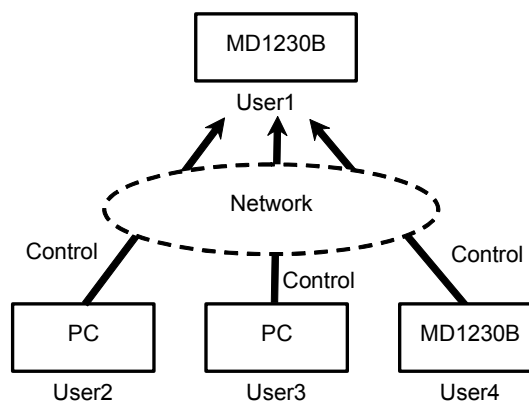
The monitored traffic data can be saved in a file to be replayed later.

 For details on recording logs, refer to Section 3.3 “Recording Log”.

 For details on replaying logs, refer to Section 4 “Replay Software”.

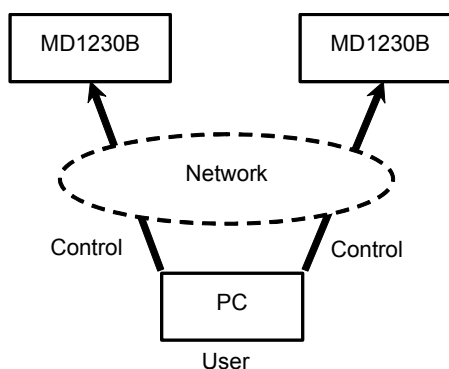
### Multiuser/multiunit

The multiuser function allows up to four users including a user who operates the main unit itself to control the main unit simultaneously.



**Figure 1.2-2 Multiuser control**

The multiunit function allows a user to control up to two main units including the main unit itself simultaneously.



**Figure 1.2-3 Multiunit control**

### Notes:

1. The multiuser/multiunit function is restricted only within the MD1230 family (MD1230B, MX123001A) or MP1590 family (MP1590B, MX159001B) products.  
Therefore, MD1230 family and MP1590 family products cannot be controlled together.
2. A main unit in the application traffic monitor mode and a main unit in the normal mode cannot be controlled simultaneously.

## 1.3 Restrictions on Use

The application traffic monitor can be used by switching the settings of the main unit using the Setup Utility, which can be executed from the menu that appears immediately after the startup of the main unit. Note that the application traffic monitor is exclusive to normal measurement functions. When the application traffic monitor is enabled, therefore, normal measurement functions other than port setting, stream transmission, counter, multiflow counter, and capture functions, are disabled. In addition, the remote control depending on the remote command option is also disabled.

The main unit can control the MU120112A/21A/22A/31A/32A/38A modules. Modules other than these cannot be controlled by the main unit, and they will not be recognized, even if installed. The number of modules that can be controlled simultaneously by one main unit is restricted so that the total number of ports is four or less. In the case of the MU120112A, for example, up to two MU120112A modules can be controlled since it has two ports. For the MU120121A/22A/31A/32A/38A, only one module can be controlled, since it has four ports or more. MU120131A/32A/38A Ports 1 thru 4 can be controlled. In this case, Port 5 and later cannot be used. Module(s) used by the Application Traffic Monitor can be selected in the Setup Utility tab.

When the Application Traffic Monitor screen is opened, the keys available for the front panel of the main unit are limited to a part of them.

For the MD1230B, 0 Symbol to 9 wxyz, A to F, ./: , +/-, BS, Del, Set, Cancel, →| F, R |←, <, >, ^, v keys and the Pointing Device only are available.

For the MP1590B, 0 Symbol to 9 wxyz, A to F, . , +/-, ←, →, BS, Set, Cancel, <, >, ^, v, Screen Copy keys and the Pointing Device only are available.

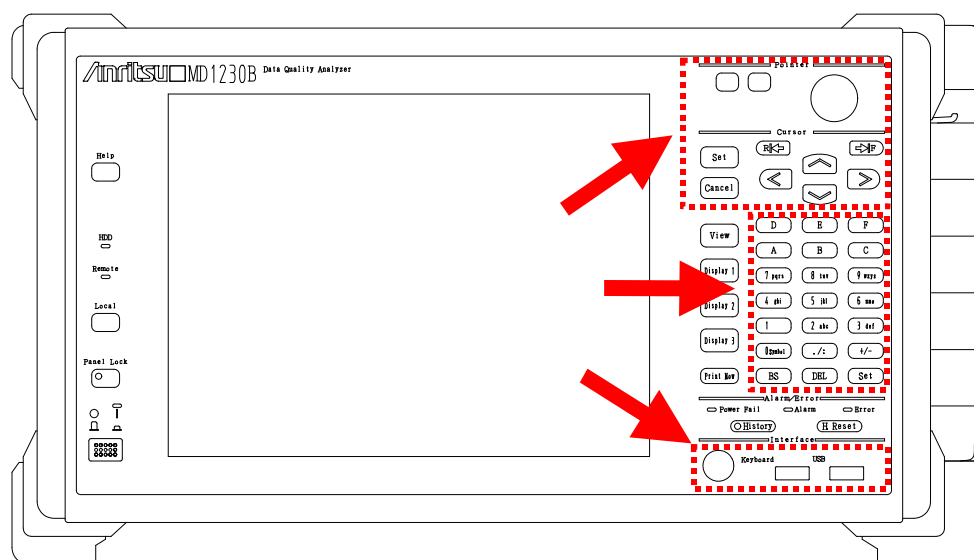


Figure 1.3-1 Keys available for the front panel (MD1230B)



## CAUTION

As per the following usage conditions, there is a possibility that some monitoring data may be lost in log save.

■ When measuring with the main unit:

- When a file is transferred via the network while measurement is being performed using the network sharing function of Windows installed in the main unit.

Countermeasure:

Do not access files within the main unit during measurement.

- When nodes that actively cause a loss of packets exist in the LAN on which the main unit is connected.

Countermeasure:

The LAN that contains the main unit must be a closed configuration, in which there are hubs, but not nodes.

■ When measuring with PC:

- When a software application other than the control software, including resident software such as a virus scan program, is operating at the same time on the PC.

Countermeasure:

Terminate all the other software applications, including resident software, while measuring.

- When a file is transferred via the network while measurement is being performed using the network sharing function of Windows on the PC.

Countermeasure:

Do not access files in the PC during measurement.

- When multiple users save log simultaneously by the multiuser function (see 1.2 “Features”).

Countermeasure:

If you need to save log without losing monitoring data, avoid using the multiuser function.

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## *Chapter 2 Installation and Activation*

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This chapter provides activation procedures.

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## 2.1 Updating Firmware and Activating Application Traffic Monitor

To use the application traffic monitor, the operation mode of the main unit must be set to the application traffic monitor mode. Once the operation mode is set, it does not need to be set for each time of startup of the main unit, since the setting of the operation mode is maintained even when the main unit is turned off. This section explains the procedure to set the application traffic monitor mode.

**Note:**

Application traffic monitor option must be installed in the main unit.

If this option is not installed, install it in the main unit by referring to the document provided with it.

■ Preparation

1. Connect a mouse to the main unit before turning it on. Install the module to be used by the application traffic monitor in the main unit.
2. Turn on the main unit, and wait until the Selector is activated (the Selector startup screen shown below is displayed). Activate [Setup Utility] from the startup screen (when MP1590B, select [MP1590B User] on the displayed dialog box.).

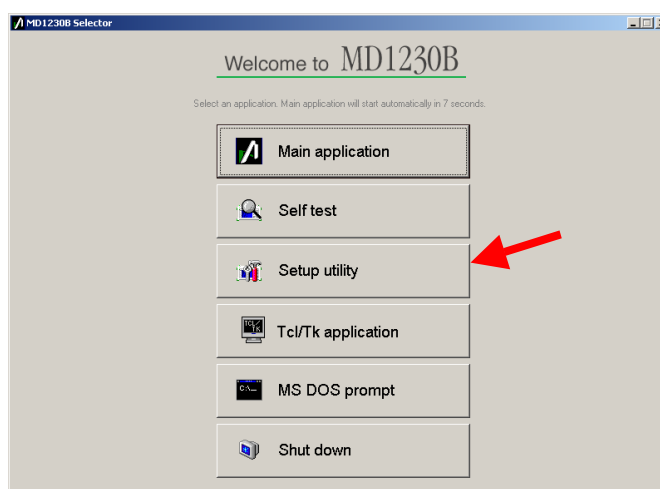


Figure. 2.1-1 Selector (Normal mode)



## 2.1 Updating Firmware and Activating Application Traffic Monitor

- Open the {Firmware Functionality} tab and select [Application Traffic Monitor] from the Unit pull-down list.

A checkbox appears for each module that can be used by the application traffic monitor. Select a checkbox for the module (s) to be used. When the total number of ports on the selected modules becomes 1 to 4, the [Apply] button is enabled. Possible combinations that satisfy the above condition are, for example, a configuration of two MU120112A modules and a configuration of a single MU120121A/22A/31A/32A module.

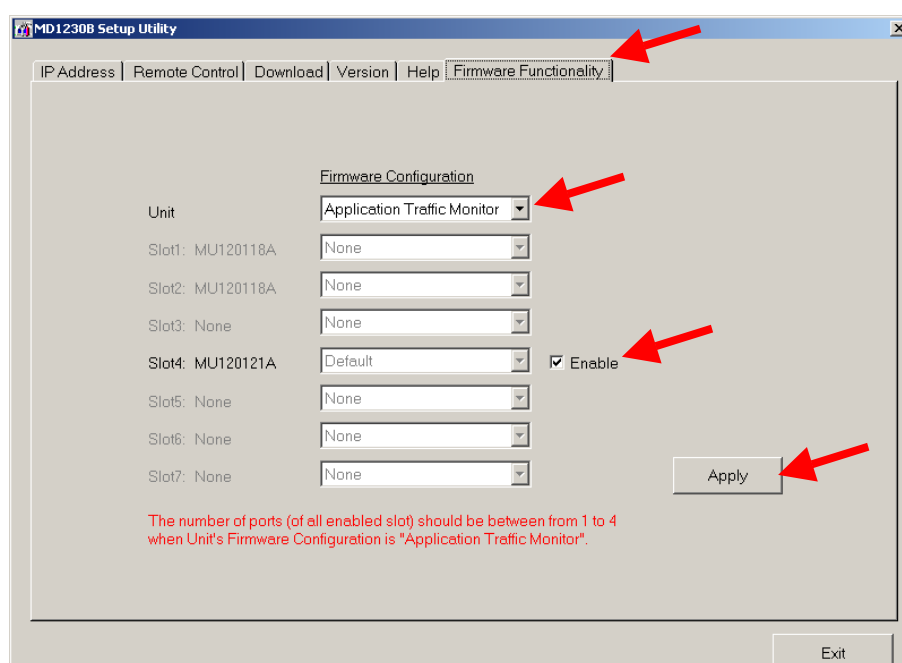


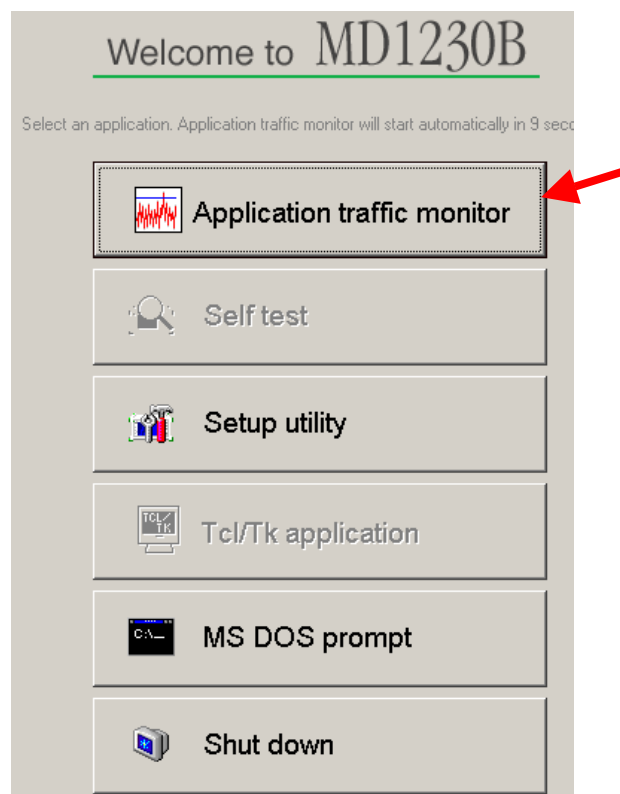
Figure. 2.1-2 Setup Utility screen (Firmware Functionality tab)

### Notes:

- Check box will not appear if you haven't installed any modules that support the Application Traffic Monitor.
  - The [Apply] button is enabled when the condition to switch to the Application Traffic Monitor mode is satisfied.
- Press the [Apply] button. Wait until the operation mode is changed completely.
  - When the operation mode is changed, the [Exit] button is enabled. Press the [Exit] button to terminate the Setup Utility.

**Notes:**

1. To return the main unit from the application traffic monitor mode to the normal mode, select [Default] from the Unit pull-down list and then click the [Apply] button.
2. Do not insert/remove a module in the application traffic monitor mode. If the module configuration changes in the traffic monitor mode, the main unit will start up in the normal mode.
6. Check that the Selector is as shown in the figure below. The button on the top has changed to that dedicated for application traffic monitor activation.  
Clicking this button activates the Main Application and the application traffic monitor becomes available.



**Figure 2.1-3 Selector (Application Traffic Monitor Mode)**

**Note:**

This option must be installed in the main unit.  
If this option is not installed, install it in the main unit by referring to the document provided with it.

## 2.2 Opening Application Traffic Monitor Screen

When the main unit is in the application traffic monitor mode, activating the Main Application adds an icon to the upper left position on the Tree View (shown in the figure below). Click the icon to open the Application Traffic Monitor screen.

Complete settings on the port to be measured (Port Setting, obtaining owner right, etc.) before opening the Application Traffic Monitor screen. For details of the operations before opening the Application Traffic Monitor screen, refer to *MX123001A Data Quality Analyzer Control Software Operation Manual* or *MX159001B Network Performance Tester Operation Manual*.

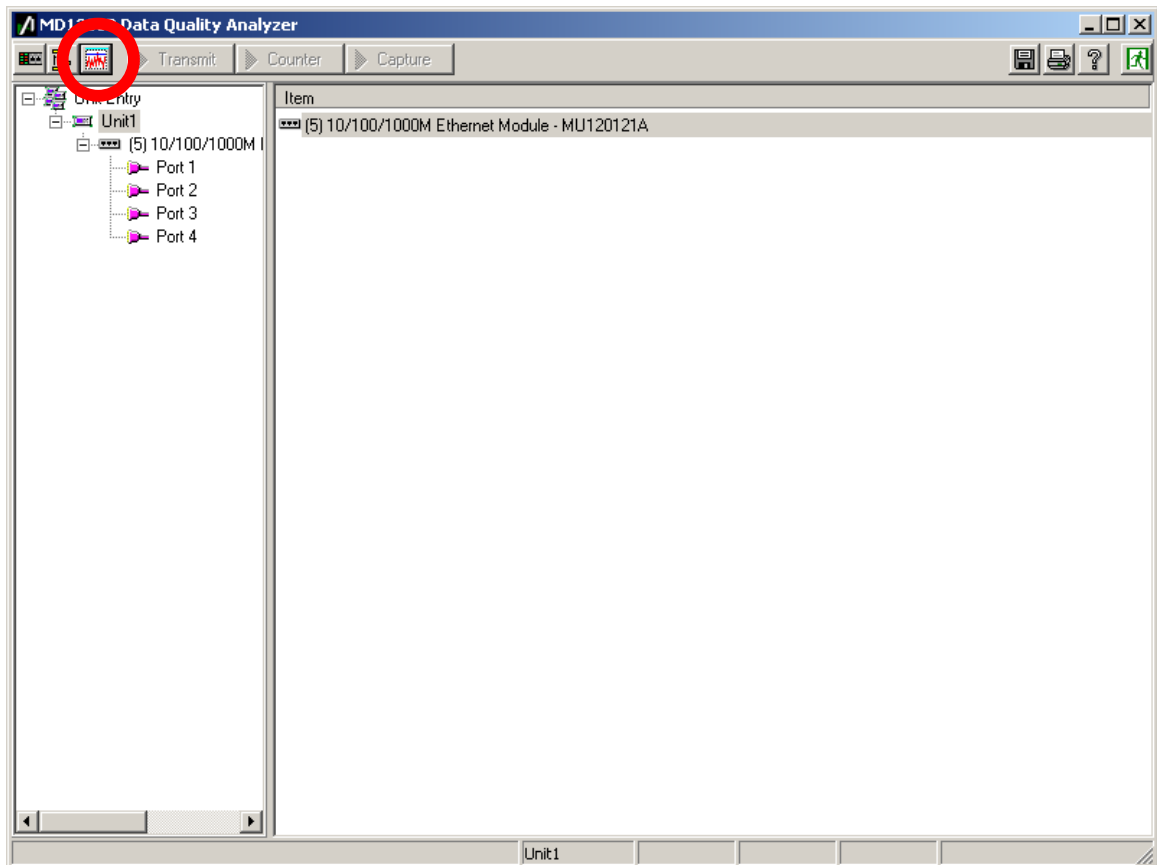


Figure 2.2-1 Main Application



## Chapter 3 Operation

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This chapter describes the operation on the Application Traffic Monitor. Refer to corresponding sections in *MX123001A Data Quality Analyzer Control Software Operation Manual* or *MX159001B Network Performance Tester Operation Manual* for the operation on other screens.

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## 3.1 Application Traffic Monitor Screen

The Application Traffic Monitor screen is the main screen for the application traffic monitor. The settings of the application traffic monitor, control and the measurement results are displayed.

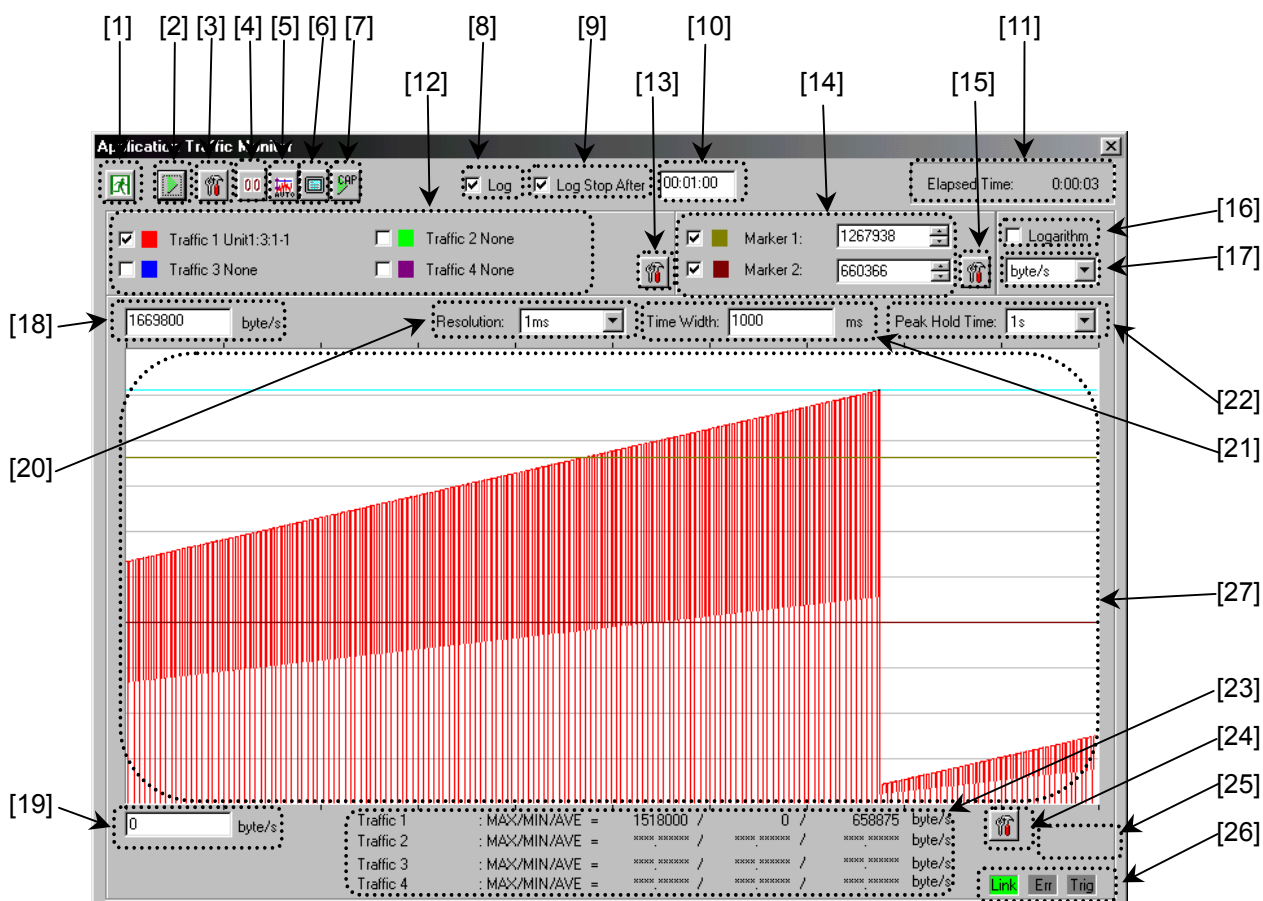
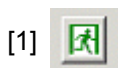


Figure 3.1-1 Application Traffic Monitor screen



Closes the Application Traffic Monitor screen and returns to the previous screen.

Clicking the [x] button at upper right of the screen also closes the screen.



Starts/stops measurement as targeting the port set in [13].



[3] Opens the Counter/Capture Filter/Trigger Setting screen for filter setting. Settings can be performed independently for each post. This button cannot be operated during measurement.



For details, refer to Section 3.2.2 "Counter/Capture Filter/Trigger Setting screen".




[4] Clears the displayed graph. It does not affect the Log file being obtained.



[5] Performs auto scaling for the graph. Resets the maximum value of the vertical axis of the graph (refer to [18]) to that somewhat larger than the maximum value currently displayed in graph.



[6] Full-screen display. The graph is enlarged by displaying the full screen as shown below. In the full-screen display, the functions on the Application Traffic Monitor screen are limited. Functions other than a graphic display, MAX/MIN/AVE display and LED display cannot be used. Click  on the upper right of the screen to exit the full-screen display.

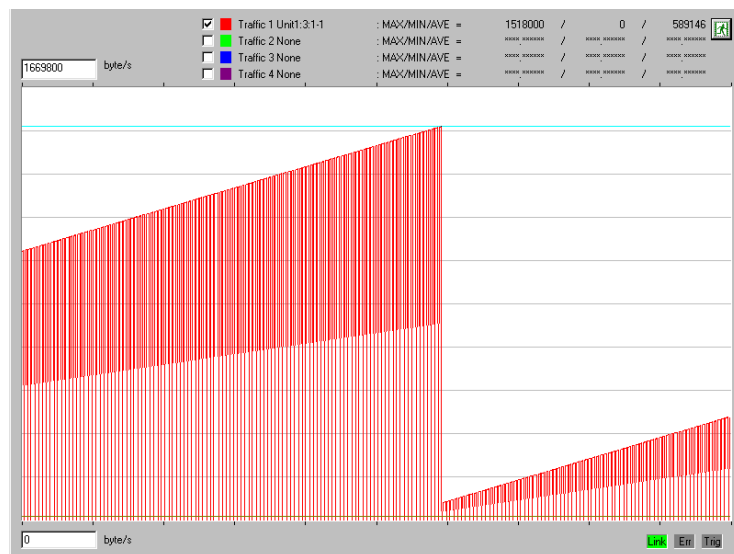


Figure 3.1-2 Full-screen display



Starts/stops capturing as targeting the port set in [13]. However, it is required to be in the Reserved state.

When analyzing captured frames, close the Application Traffic Monitor screen and open the Capture screen.



Select this check box before starting measurement to record log during measurement. Specify the name of save-destination file at start of measurement. This item cannot be operated during measurement.

 For details, refer to Section 3.3 “Recording Log”.

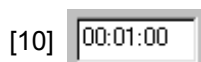


Stops the automatic logging of measurement data. When the check box is selected, the automatic logging stops after time specified in [10] from measurement has elapsed.

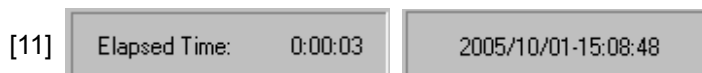
This check box is enabled when [8] Log is selected. This item cannot be operated during measurement.

**Note:**

Measurement continues even after log recording is automatically stopped by this setting.



Specify elapsed time when log recording is set to be stopped automatically. Set in “HH:MM:SS” format and setting range is from 00:00:01 (1 second) to 99:59:59 (99 hours, 59 minutes and 59 seconds.) This field is enabled when [9] Log Stop After is selected. This item cannot be operated during measurement.



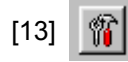
Displays the elapsed time from the measurement start, or present time. Every time left-click is performed, the display is switched.



Displays the color displayed in a graph, identification label, port number, and applicable filter number for the flow to be measured.

The flows whose check boxes are selected are displayed in a graph.



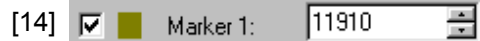


[13]

Opens the Flow Select screen, in which the color displayed in a graph, identification label, measurement port, and applicable filter for the flow to be measured can be set. This button is disabled during measurement.



For details, refer to Section 3.2.1 “Flow Select screen”.



[14]

Set whether to show/hide Markers 1 and 2 as well as the marker values. When the check box is selected, the horizontal line corresponding to the rate set here appears on the graph. The marker value can be entered directly. Otherwise, the spin buttons can also be used for setting the marker value. Holding down a spin button rapidly increases/decreases the marker value. The setting range is as follows (it is displayed in units specified in [17]):

0 to 10,000,000,000 (bit/s)

Step: 1bit/s



[15]

Opens the Marker Setting screen for setting the marker display color. Display colors for Marker 1 and Marker 2 can be set separately.

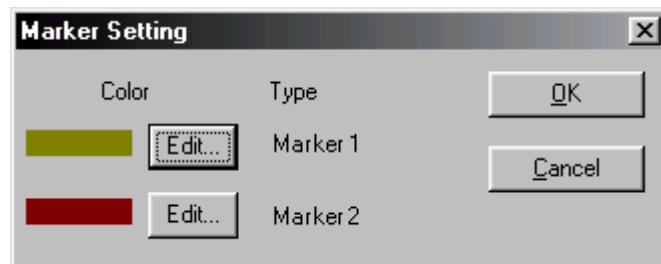



Figure 3.1-3 Marker Setting screen



[16]


Checking the check box switches to the Logarithm graph display. The vertical axis (traffic intensity per time) in the graph is switched to the Logarithm display.

[17] 

Switch unit for the vertical axis of the graph.

The following units are available: (1K=1000, 1M=1000K)

bit/s  
Kbit/s  
Mbit/s  
byte/s  
Kbyte/s  
Mbyte/s

[18] [19] 

Set the display range for the vertical axis of the graph. One above the graph ([18]) sets the upper limit of the range, and one under the graph ([19]) sets the lower limit. The scale of the vertical axis is changed according to the display range set here. The range in which the upper and lower limits may be set is shown below:

$0 \leq \text{lower limit} < \text{upper limit} \leq 10,000,000,000 \text{ (bit/s)}$

[20] 

Set measurement resolution for the graph display of traffic monitors.

The following resolutions are available:

1 ms  
10 ms  
100 ms  
500 ms  
1 s

**Note:**

Note that this resolution setting is for the graph display. Measurement and logging is always performed in 1-ms resolution regardless of this setting.

[21] Time Width:  ms

Set the width for the horizontal axis (time axis) of the monitor. The scale of the horizontal axis is changed according to the width set here. The setting range varies depending on the measurement resolution. Correspondence between Resolution and the setting range is shown below.

1 ms:	100 ms	to	2,000 ms	(1 ms step)
10 ms:	1,000 ms	to	20,000 ms	(10 ms step)
100 ms:	10,000 ms	to	100,000 ms	(100 ms step)
500 ms:	50,000 ms	to	500,000 ms	(500 ms step)
1 s:	100,000 ms	to	1,000,000 ms	(1,000 ms step)

[22] Peak Hold Time:

Set the peak hold time. The peak marker is fixed at the maximum value of measured data within the specified time. The setting range varies depending on the set value for the Time Width text filed ([21]). The following values are available, as long as the Time Width value is not exceeded.

“1 s” and “Untimed” can be always selected. “Untimed” is the maximum value from the start of measurement.

- 1 s
- 10 s
- 1 min
- 15 min
- Untimed

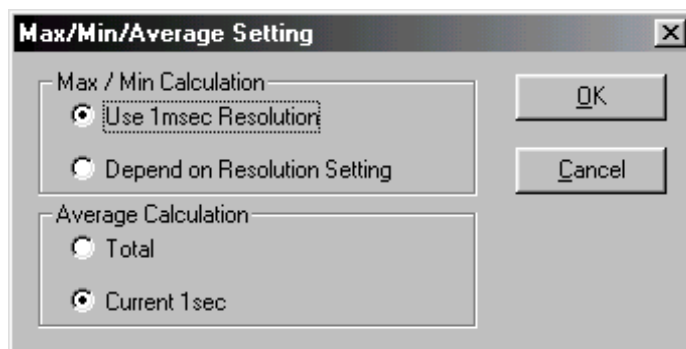
[23]

Traffic 1	: MAX/MIN/AVE =	1518000 /	0 /	658875	byte/s
Traffic 2	: MAX/MIN/AVE =	XXXX XXXXXX /	XXXX XXXXXX /	XXXX XXXXXX	byte/s
Traffic 3	: MAX/MIN/AVE =	XXXX XXXXXX /	XXXX XXXXXX /	XXXX XXXXXX	byte/s
Traffic 4	: MAX/MIN/AVE =	XXXX XXXXXX /	XXXX XXXXXX /	XXXX XXXXXX	byte/s

Shows the maximum (MAX) and minimum (MIN) values from the start of measurement up to the present for each flow. Also shows the average value (AVE) for the last one second or from the start of measurement up to the present, in real time. The set identification labels for each flow are displayed on the left.

[24] 

Sets MAX/MIN/AVE described in [23]. Clicking it opens the Max/Min/Average Setting screen shown below.



**Figure 3.1-4 Max/Min/Average Setting screen**

#### Max / Min Calculation

Set the calculation method for Max/Min. Select “Use 1msec Resolution” to perform a calculation with 1-ms resolution. Select “Depend on Resolution Setting” to perform calculations with the resolution set in the Resolution pull-down list ([20]).


#### Average Calculation

Set the calculation method for AVE. Select “Total” to perform the calculation with the average rate from start of measurement up to the present. Select “Current 1 sec” to perform calculation with the average rate for the last one second.

[25]

Shows the number of lost data, if any.

Nothing is displayed when no data is lost.

This is not displayed when  ([6] Full-screen display) is selected or Traffic Player (Chapter 4 “Replay Software”) runs.

[26]   

These are LED lamps indicating the communication status.

Link: Indicates the Link status at the port to be measured.

Lights in green when normal.

Shown with Logical-AND condition when multiple ports are to be measured.

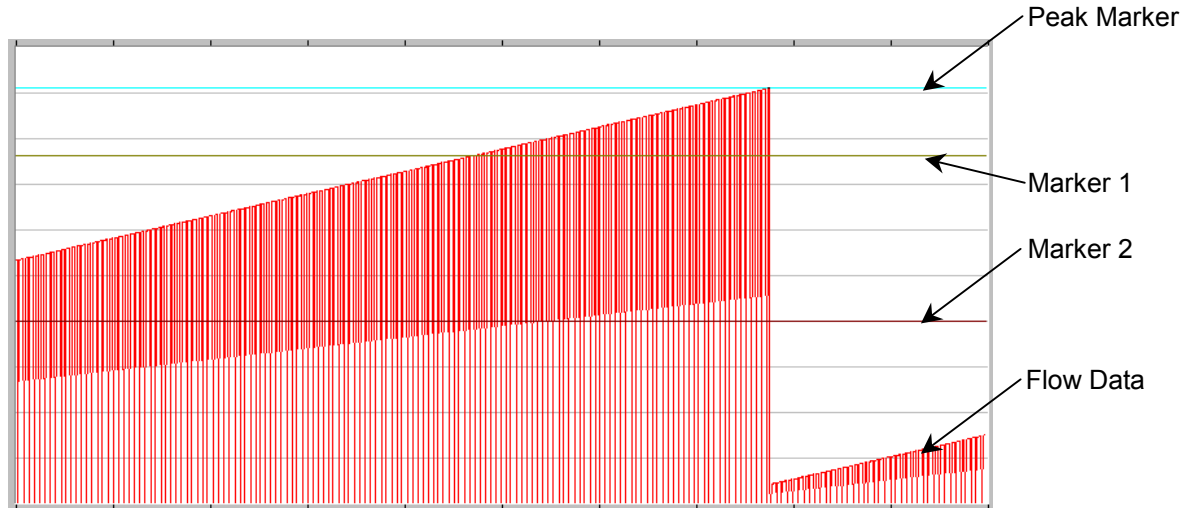
Err: Lights in red when the error counter for the port to be measured counts up.

Shown with Logical-OR condition when multiple ports are to be measured.

Trig: Lights in yellow to indicate trigger activation when the capture function is used for the port to be measured.

Shown with Logical-OR condition when multiple ports are to be measured.

[27]



**Figure 3.1-5 Graph display of measured results**

Real-time graph display of the measured results. A delay of about 5 s from measurement to display is accompanied depending on buffering. The vertical axis on the monitor shows the traffic intensity per unit time. The horizontal axis shows time. Vertical/horizontal grid interval divide equally the display range into 10. However, when the vertical grid display is set to Logarithm, it shows only value of power of 10 within the current display range.

#### Flow Data

The flows that are enabled in [12] to be displayed in a graph are displayed. The value of the vertical axis in the graph is converted into the rate set in [17] by accumulating the frame size (DA to FCS) of the individual Ethernet frame that composes the flow by [20] Resolution setting period.

#### Peak Marker

Indicates the peak value of Flow Data. The time to keep display/non-display is set with [22] Peak Hold Time. It is displayed for each Traffic. The display color is set to the complementary color of the corresponding graph at the time when the Application Traffic Monitor screen is opened. For example, if the display colors in the graph are red, green and blue when the Application Traffic Monitor screen is opened, they are set to cyan, magenta and yellow respectively.

#### Marker 1, Marker 2

When it is enabled in [14], the position for the specified traffic value is indicated. The Marker color is submitted to the settings in [15].

**Note:**

Do not take the graph out of the screen by moving the window.  
This causes the graph image being distorted.

## 3.2 Setting Flow to Be Measured

This section describes the setting procedures of count condition, filter and trigger.

The application traffic monitor function enables up to four flows of traffics to be displayed and logged in real time simultaneously. Perform the settings shown below before starting measurement. Select the counter to be displayed/logged in the Flow Select screen that is shown in Section 3.2.1. (See Note.)

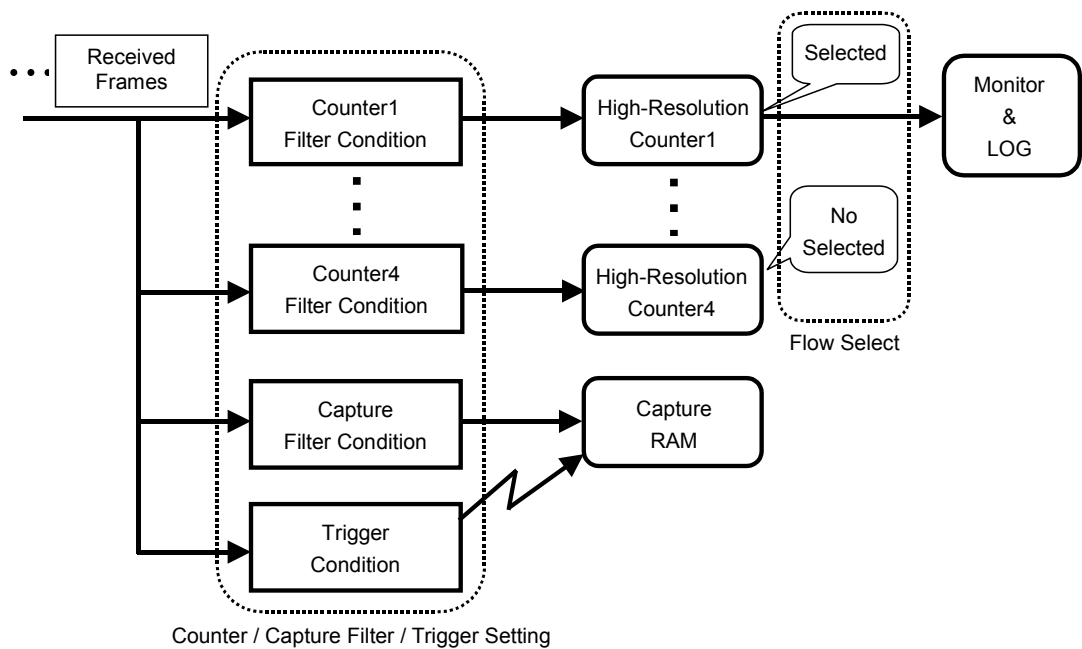
**Note:**

Since the filters not selected in the Flow Select screen are also measured, they can be viewed from an externally connected PC.

Set the counter filtering conditions in the Counter/Capture Filter/Trigger Setting screen (see Section 3.2.2). The filtering and trigger conditions for the capture function can also be set in this screen.

A frame passing the filter conditions is captured into the capture RAM, triggered by a frame that satisfies the trigger conditions.

The block diagram for these relationships is shown below:



**Figure 3.2-1 Measurement block diagram**



### 3.2.1 Flow Select screen

Click the button [13] on the Application Traffic Monitor screen (see Section 3.1) to open the Flow Select screen. The traffic monitor counters to be monitored/logged can be selected in this screen.

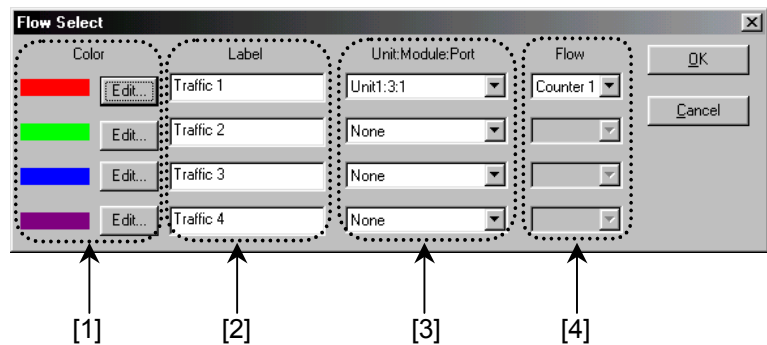


Figure 3.2.1-1 Flow Select screen



Displays the color currently set to be displayed in the graph. When the [Edit...] button is clicked, the Color screen used to set the display color is open.

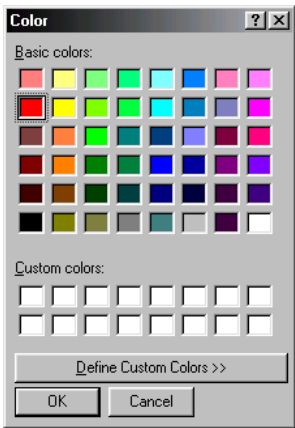
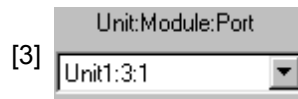


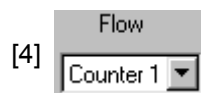
Figure 3.2.1-2 Color screen



Set the identification label (12 characters maximum) in a graph.



Select the port to be measured. A list of ports that can be measured is displayed in the format of the unit name, slot number, and port number, divided by colon. “None” is also included in the list. When “None” is selected, the corresponding item will not be measured.



Select a traffic monitor counter. The flows to be monitored/logged are determined by combination of the settings in [3] and [4].

**Note:**

For the counter setting method, refer to Section 3.2.2 “Counter/Capture Filter/Trigger Setting screen”. In the default status, all input traffic flows are to be counted by all counters.

### 3.2.2 Counter/Capture Filter/Trigger Setting screen

Click the button [3] on the Application Traffic Monitor screen (see Section 3.1 “Application Traffic Monitor Screen”) to open the Counter/Capture Filter/Setting screen. The filter conditions for traffic monitor counter and capture filter/trigger can be set in this screen.

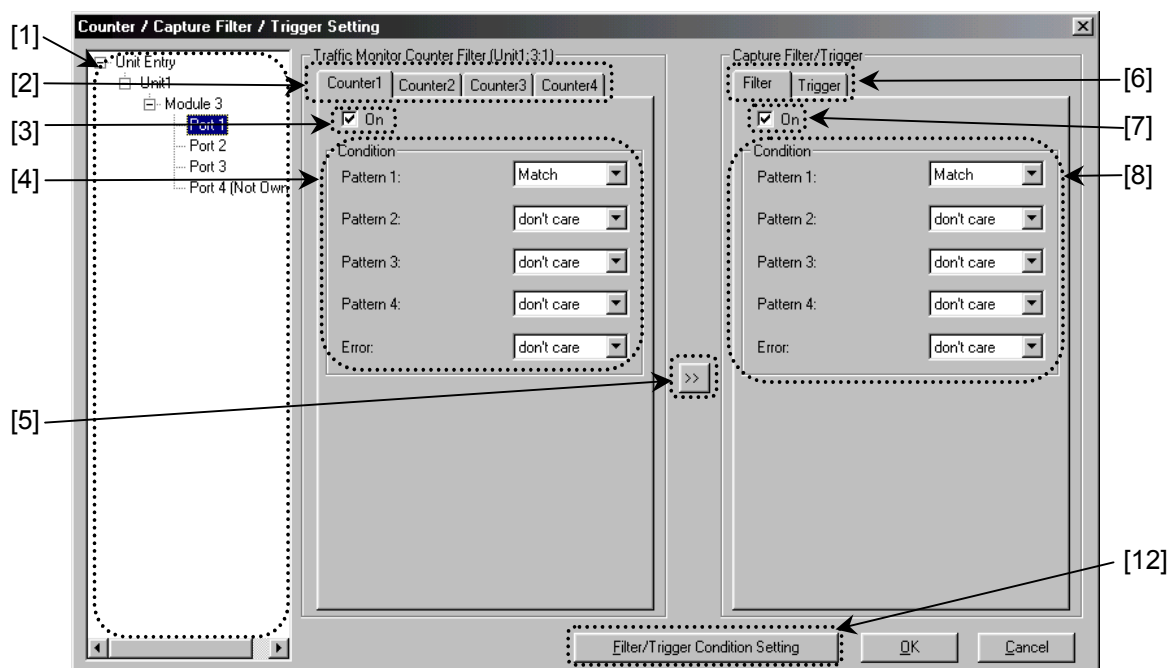


Figure 3.2.2-1 Counter/Capture Filter/Trigger Setting screen (Capture Filter tab)

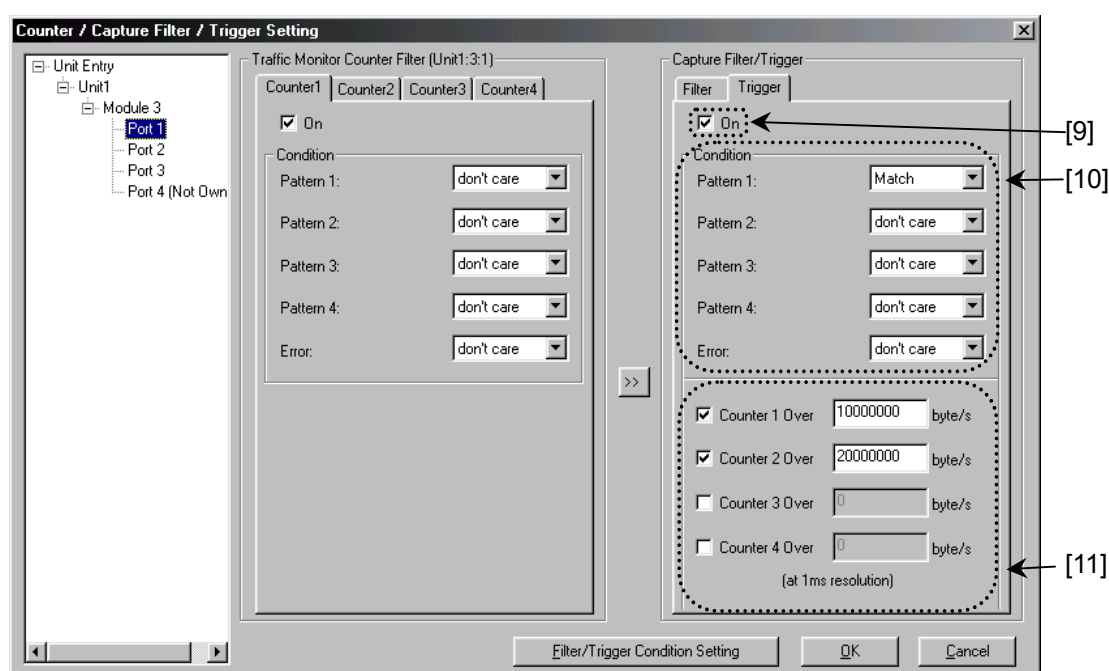
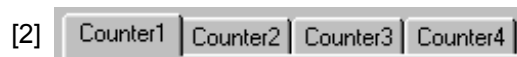


Figure 3.2.2-2 Counter/Capture Filter/Trigger Setting screen (Capture Trigger tab)



Select the port for which filter setting is performed.

For a port that you are not the owner, [Not Owner] is displayed and setting cannot be performed.



Set each filter for the traffic monitor counters on the selected port. Switch tabs among [Counter 1], [Counter 2], [Filter] and [Trigger] to perform settings individually.



Enables/disables the traffic monitor counter filter.

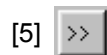
When the check box is selected (On), traffic flows that satisfy the filtering conditions set in [4] are to be measured.

When the check box is not selected (Off), all the packets input to the port are to be measured.

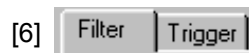


Set the filtering condition for the traffic monitor counter.

Select a matching condition for each parameter from Match, Not Match and Don't care. Click button [12] to set pattern or And/Or condition.



Copies the settings in the Condition field for the traffic monitor counter filter (on the left) to the Condition field for the capture filter/trigger (on the right).



Set capture filter/trigger for the selected port. Filter setting is the same as that for traffic monitor counter.



Enables/disables the capture filter.

When the check box is selected (On), traffic flows that satisfy the filtering conditions set in [8] are to be captured.

When the check box is not selected (Off), all the packets input to the port are to be captured.



Set the capture filter condition.

Select a matching condition for each parameter from **Match**, **Not Match** and **Don't care**. Click the Filter/Trigger Condition Setting button ([12]) to set pattern or And/Or condition.



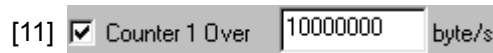
Enables/disables the capture trigger.

When the check box is selected (On), a capture trigger is generated when either one of the conditions set in [10] or [11] is met.



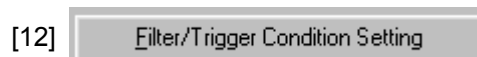
Set the capture trigger condition based on the content of the received frame.

Select a matching condition for each parameter from **Match**, **Not Match** and **Don't care**. Click the Filter/Trigger Condition Setting button ([12]) to set pattern or And/Or condition.



Set the capture trigger condition based on the volume of the received traffic flows. A capture trigger is generated when the traffic intensity per 1 ms exceeds the rate set in the text box for any of the selected traffic monitor counters. The settable range is as follows:

0 to 10,000,000,000 (bit/s)



Opens the Filter/Trigger/Counter Condition Setting screen, in which the filter/trigger pattern and And/Or condition for the selected port can be changed.




For details on the Filter/Trigger/Counter Condition Setting screen, refer to Section 5.9.3 “Setting filter and trigger patterns in the MX123001A Data Quality Analyzer Control Software Operation Manual” or 6.5.9.3 “Setting filter and trigger patterns in MX159001B Network Performance Tester Control Software Operation Manual”.

## 3.3 Recording Log

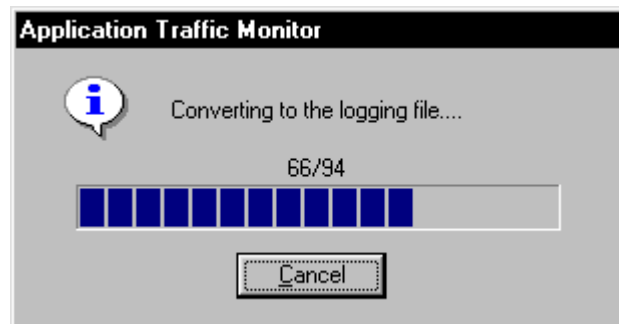
### 3.3.1 Overview

The measured results can be recorded in a log file. When a log file is read using the replay software, the measured results can be replayed and verified in detail. Since log files are saved in the text format, the user can analyze a log file directly.

 For details on the replay software, refer to Section 4 “Replay Software”.

When measurement is started with log recording enabled (see [8], [9], and [10] in Section 3.1 “Application Traffic Monitor Screen”), log is recorded for the flows set in the Flow Select screen (see Section 3.2.1). When the [Log Stop After] check box is selected, logs are recorded until the specified period of time has passed (see Note 2). When the [Log Stop After] check box is not selected, logs are recorded until the measurement has finished. Note, however, that log recording stops if it cannot be continued for some reason such as insufficient disk space.

When the Log check box is selected before starting measurement, the following screen is displayed when the measurement is complete:



**Figure 3.3.1-1**

This screen shows that the log data saved in the internal format during measurement is being converted to the text format. When conversion is complete, the [Cancel] button on the screen changes to the [OK] button.

If a part of the log data has been lost, the following screen is displayed after the log conversion progress indication screen shown above is closed, to report the data missing (lost).

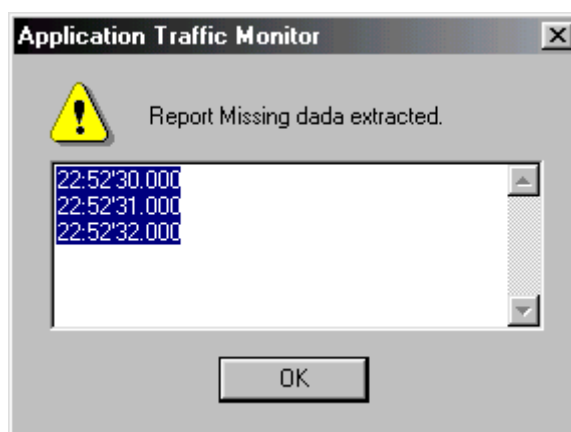


Figure 3.3.1-2

**Notes:**

1. Removable media cannot be set as the output destination of the log file.
2. Measurement continues even after log recording is automatically stopped by enabling [Log Stop After].
3. Log recording is stopped at the time when the free disk space is predicted to become insufficient. Note, however, that a free disk space shortage may occur at conversion of log file from the intermediate format to the text format; the conversion is performed at the end of measurement, so this may occur if the free disk space becomes smaller than the time when log recording is stopped. Use a hard disk with sufficient capacity for recording the log file.

### 3.3.2 Necessary free disk space

The free disk space necessary to record logs can be calculated from the recording time and number of flows to be logged.

A guide for necessary disk space is shown in the table below.

**Table 3.3.2-1 Necessary free disk space**

Recording time	Number of flows to be recorded	
	One flow	Four flows
10 minutes	18 Mbytes	45 Mbytes
1 hour	104 Mbytes	268 Mbytes
10 hours	1032 Mbytes	2.8 Gbytes
15 hours	1547 Mbytes	3.9 Gbytes
100 hours	10.1 Gbytes	26.2 Gbytes
400 hours	40.3 Gbytes	105 Gbytes

**Note:**

The information shown above is only a rough guide. It is not a precise and guaranteed log recording time.

However, the log record that exceeds guarantee time is not guaranteed. The guarantee time depends on the OS and file system of the logs recording device.

**Table 3.3.2-2 Guarantee time**

OS	File system	Guarantee time
Windows 2000 Windows XP	FAT32	30 hr.
	NTFS	400 hr.

**Note:**

Windows XP is installed in the MD1230B and MP1590B.  
The file system is NTFS.



3.3.3 Log file record format

<Configuration>	
1st line:	Title, measurement start date/time, measurement stop date/time
2nd line:	Version
3rd line:	Enable/disable of flows. Flow Map: $F_1, F_2, F_3, F_4$ (When Flow X is enabled, $F_X=1$ . When disabled, $F_X=0$ .)
4th line:	Label of Flow 1, physical port identifier
5th line:	Module name for Flow 1
6th thru 17th lines:	Filtering conditions for Flow 1
18th line:	Label of Flow 2, physical port identifier
19th line:	Module name for Flow 2
20th thru 31st lines:	Filtering conditions for Flow 2
32nd line:	Label of Flow 3, physical port identifier
33rd line:	Module name for Flow 3
34th thru 45th lines:	Filtering conditions for Flow 3
46th line:	Label of Flow 4, physical port identifier
47th line:	Module name for Flow 4
48th thru 59th lines:	Filtering conditions for Flow 4
60th line:	Title of column for contents of 56th and subsequent lines.
61st and succeeding lines:	Time stamp, Flow 1 data, Flow 2 data, Flow 3 data, Flow 4 data (Unit: bit/s)
Last line:	Maximum value of Flow 1, minimum value of Flow 1, maximum value of Flow 2, ... <omitted>... , maximum value of Flow 4, minimum value of Flow 4 (Unit: bit/s)

**Note:**

Only the flows allowed to be measured are recorded in a log file. For example, when measurement is enabled only for the 2nd flow, the following operations are performed.

3rd line	Only $F_2$ is enabled. (ex.: Flow Map: 0,1,0,0)
4th thru 17th lines	Information on the 2nd flow is recorded. Flows 1, 3 and 4 are omitted.
18th line	Title line consisting of TIME and Flow 2 data only.
19th and subsequent lines	Time stamp and Flow 2 data are recorded. (ex.: 10:00'30.001,00000012345)
Last line	The maximum and minimum values of Flow 2 are recorded. (ex.: 000000000000,000000000000)

## &lt;Format&gt;

Title	Anritsu Application Traffic Monitor
Date	Depends on the localization settings
Time stamp	HH:MM'SS.*** Each of hour, minute, second and milli-second digits are right-aligned with zero-suppression
Monitor data	***** (11 digits, right-aligned with zero-suppression)

<Example of output>

```
1: Anritsu Application Traffic Monitor,2002.09.01 10:00'30,2002.09.01 22:00'20
2: Version: 5.00.00
3: Flow Map: 1,1,1,1
4: Traffic 1:UNIT1:2:1:1 <User-allocated label is output as flow name>
5: Module Type: MU120112A
6: Source MAC:00.11.22.33.44.55,don't care
7: Destination MAC:66.77.88.99.00.AA,don't care
8: Pattern1:0001 0000 0000 0000 0000 0000 0000 0000,Matched
9: Mask1:0000 FFFF FFFF FFFF FFFF FFFF FFFF FFFF
10: Pattern2:0000 0000 0000 0000 0000 0000 0000 0000,don't care
11: Mask2:0000 0000 0000 0000 0000 0000 0000 0000
12: Pattern3:(n/a), (n/a) <(n/a) is displayed for the setting items that are not available, depending
    on module type>
13: Mask3:(n/a)
14: Pattern4:(n/a), (n/a)
15: Mask4:(n/a)
16: Error Type:Good Frame,Matched
17: Combination:And
18: Traffic 2:UNIT1:2:1:2
    <Same items as 3rd through 15th lines are displayed for enabled flows>
31: Combination:And
    < Omitted >
60: TIME,UNIT1:2:1-traffic1, UNIT1:2:1-traffic2, UNIT3:2:2-traffic1, UNIT3:2:2-traffic2
61: 10:00'30.001,00000012345,00000012345,00000012345,00000012345
62: 10:00'30.002,00000012345,00000012345,00000012345,00000012345
63: 10:00'30.003,12345,12345,12345,12345
    <Same as above>

xxx: 23:59'59.123,Log was stopped for file constraint!
    <Output when logging has stopped>

xxx: >> Monitor data is missed 22:52'30.000 <<
    <Output when monitored data log is missed (lost)>

Last 00001024000,000000000000,00006354789,00006201034,00001024000,000000000000,00
    : 001024000,000000000000
```

Legend  
<>: Description (actually not output)



## *Chapter 4    Replay Software*

---

This chapter explains how to use the replay software.

4.1	Activation Procedures .....	4-2
4.2	Operation .....	4-3
4.2.1	Main screen .....	4-3
4.2.2	Operation screen .....	4-11

## 4.1 Activation Procedures

The replay software is installed into PCs as standard. It replays and displays measured log files on the Application Traffic Monitor.

Activate the replay software by selecting the “Traffic Player” icon from the Windows Start menu. It is registered to the [Start] menu on the main unit. On a PC with the control software installed, it is registered to [Start] – [Programs] – [MX123001A] or [Start] – [Programs] – [MX159001B] – [Utility].

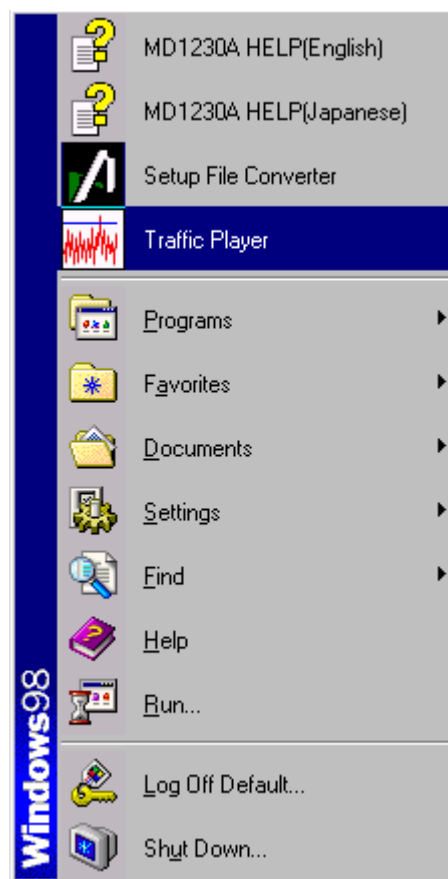


Figure. 4.1-1 Activating replay software

## 4.2 Operation

### 4.2.1 Main screen

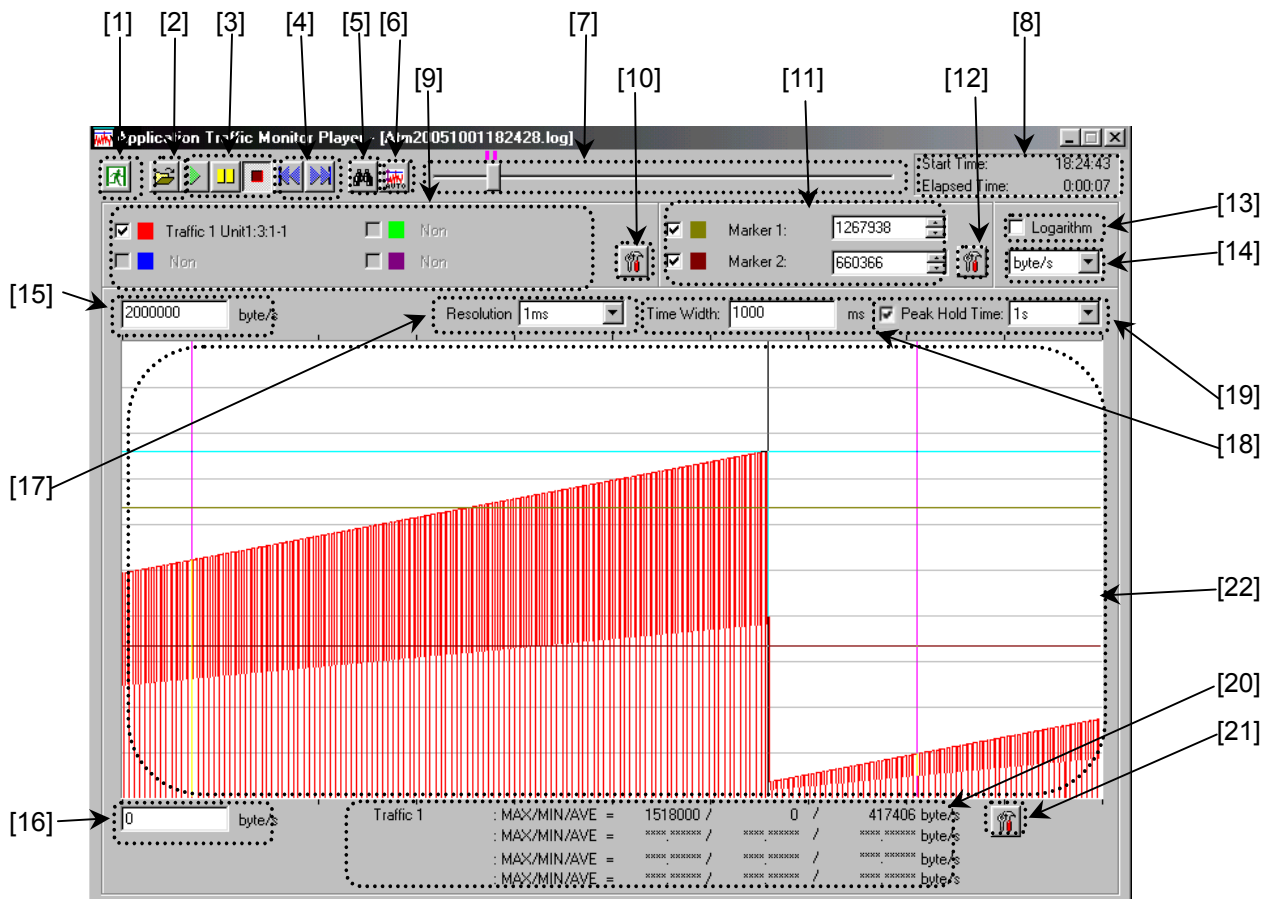


Figure 4.2.1-1 Replay software screen



Terminates the replay software.



Opens the file dialog box to open the log file to be replayed.



Replays/temporally stops/stops the log file.



Moves to the top/end of the log display period.



Opens the Operation screen. Search for the peak time of traffic intensity and calculation of traffic intensity at any period in the specific flow can be performed in this screen.



For details on the Operation screen, refer to Section 4.2.2 “Operation screen”.



Performs auto scaling of graphs. Resets the maximum value of the graph's vertical axis (refer to [15]) to that somewhat larger than the maximum value currently displayed in the graph.

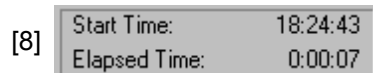


Slider bar to move to any point of the replay period.

One scale corresponds to the set time width for [18] Time Width.

Disabled during log replay.

The Start, End and Peak Search markers position are shown at the top of the slider bar.



Shows the logging start time and the elapsed time recorded in the log.



Shows graph display color, identification label, port No. and applicable filter No. for the flow to be measured.

The selected flows are displayed in the graph.




[10] 

Opens the Flow Setting screen for setting graph display color for the flow to be measured.



Figure 4.2.1-2 Flow Setting screen

[11]  Marker 1: 

Set whether to show/hide Marker 1/2, as well as the marker value. When selected, the horizontal line corresponding to the rate set here appears on the graph. In addition to direct input, the spin buttons can be used to set the marker value. Holding down the spin button greatly increases/decreases the value. The settable range is as follows (it is displayed in units specified in [14].):

0 to 10,000,000,000 (bit/s)

[12] 

Opens the Marker Setting screen for setting the marker display color. Display colors for Marker 1, Marker 2, Start Marker, End Marker and Peak Search Marker can be set.

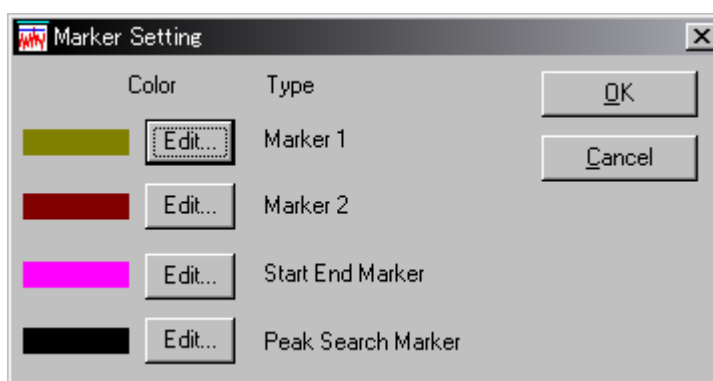



Figure 4.2.1-3 Marker Setting screen

[13] 

Checking the check box switches to the Logarithm graph display.  
The vertical axis (traffic intensity per time) in the graph is switched to the Logarithm display.

[14] 

Switch unit for the vertical axis of the monitor.  
The following units are available: (1K=1000, 1M=1000K)

bit/s  
K bit/s  
M bit/s  
byte/s K byte/s  
M byte/s

[15] [16] 

Set the display range for the vertical axis of the monitor. One above the graph ([15]) sets the upper limit of the range, and one under the graph ([16]) sets the lower limit. The scale of the vertical axis is changed according to the display range set here. Settable range is as follows.

$0 \leq \text{lower limit} < \text{upper limit} \leq 10,000,000,000 \text{ (bit/s)}$

[17] 

Set resolution for the graph display of traffic monitors.  
The following resolutions are available:

1 ms  
10 ms  
100 ms  
500 ms  
1 s

[18] Time Width:  ms

Set the width for the horizontal axis (time axis) of the monitor. The scale of the horizontal axis is changed according to the width set here. The setting range varies depending on [17] Resolution. Correspondence between Resolution and the setting range is shown below.

1 ms:	100 ms	to	2,000 ms	(1 ms step)
10 ms:	1,000 ms	to	20,000 ms	(10 ms step)
100 ms:	10,000 ms	to	100,000 ms	(100 ms step)
500 ms:	50,000 ms	to	500,000 ms	(500 ms step)
1 s:	100,000 ms	to	1,000,000 ms	(1000 ms step)

[19] ☒ Peak Hold Time:

Set the peak hold time. The Peak Marker is fixed at the maximum value of measured data within the specified time. Peak Marker is displayed when a check is enabled.

The setting range varies depending on the set value for the Time Width text field ([18]). The following values are available, as long as the Time Width value is not exceeded. “1 s” and “Untimed” can be always selected. “Untimed” is the maximum value from the start of measurement.

1 s  
10 s  
1 min  
15 min  
Untimed

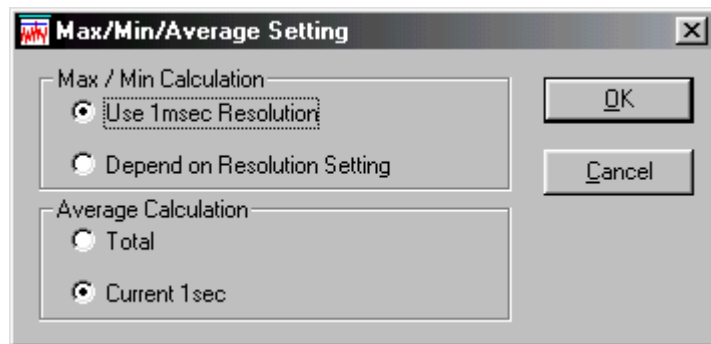
[20] 

Traffic 1	: MAX/MIN/AVE =	1518000 /	0 /	417406 byte/s
	: MAX/MIN/AVE =	XXXX XXXXX /	XXXX XXXXX /	XXXX XXXXX byte/s
	: MAX/MIN/AVE =	XXXX XXXXX /	XXXX XXXXX /	XXXX XXXXX byte/s
	: MAX/MIN/AVE =	XXXX XXXXX /	XXXX XXXXX /	XXXX XXXXX byte/s

Shows the maximum (MAX) and minimum (MIN) values from the start of measurement up to the present for each port/traffic. Also shows the average value (AVE) for the last one second or from the start of measurement up to the present, in real time. The identification labels recorded in the log are displayed on the left.

[21] 

Sets MAX/MIN/AVE described in [20] above. Clicking it opens the Max/Min/Average Setting screen shown below.



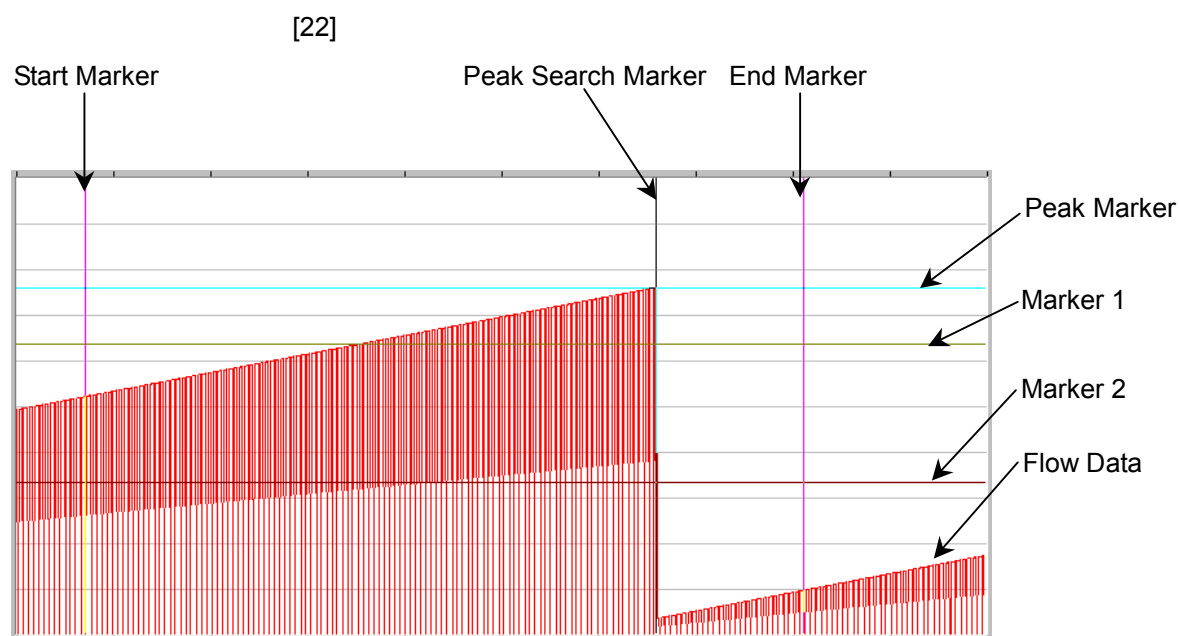
**Figure 4.2.1-4 Max/Min/Average Setting screen**

#### Max / Min Calculation

Set the calculation method for Max/Min. Select “Use 1msec Resolution” to perform calculation with 1-ms resolution. Select “Depend on Resolution Setting” to perform calculations with the resolution set in the Resolution pull-down list ([17]).

#### Average Calculation

Set the calculation method for AVE. Select “Total” to perform calculation with the average rate from start of measurement up to the present. Select “Current 1 sec” to perform calculation with the average rate for the last one second.



**Figure. 4.2.1-5 Graph display of measured results in log**

Measured results in the log file are monitored in graph.

The vertical axis on the graph shows the traffic intensity per unit time.  
The horizontal axis shows time.

Vertical/horizontal grid interval divide equally the display range into 10.  
However, when the vertical grid display is set to Logarithm, it shows only value of power of 10 within the current display range.

#### Flow Data

The flows that are enabled in [9] to be displayed in a graph are displayed.  
The value of the vertical axis in the graph is converted into the rate set in [14] by accumulating the frame size (DA to FCS) of the individual Ethernet frame that composes the flow by [17] Resolution setting period.

#### Peak Marker

Indicates the peak value of Flow Data. The display/nondisplay and the maker value- kept time are set in [19]. It is displayed for each Traffic. The display color is set to the complementary color of the corresponding graph at the time when the replay software is activated. For example, if the display colors in the graph are red, green and blue when the replay software is activated, they are set to cyan, magenta and yellow respectively.

**Marker 1, Marker 2**

When it is enabled in [11], the position of the specified traffic value is indicated.

**Start Marker, End Marker**

Indicates the target range of Peak Search/Traffic Calculation function in Section 4.2.2 “Operation screen”.

**Peak Search Marker**

Indicates the peak position searched on the Peak Search function in Section 4.2.2 “Operation screen”.

**Notes:**

1. Display/non-display of Start Marker, End Marker and Peak Search Marker are linked with display/non-display of Marker 1 (necessary for Peak Search).
2. Do not take the graph out of the screen by moving the window. This causes the graph image being distorted.

### 4.2.2 Operation screen

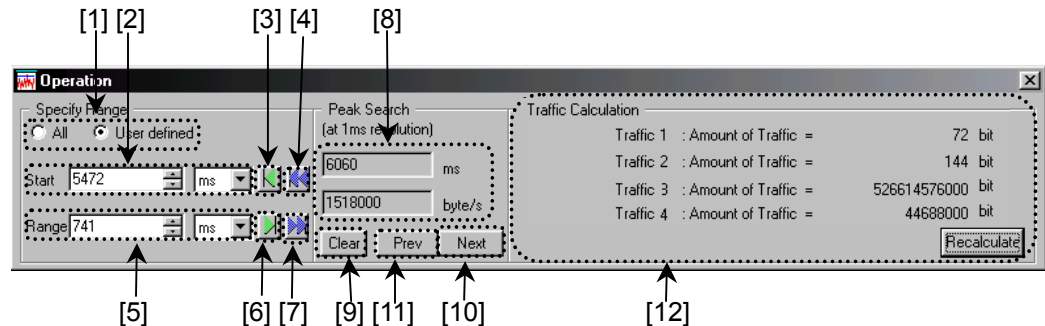


Figure 4.2.2-1 Operation screen

[1] ☐ All ☒ User defined

When the ALL radio button is selected, Start Marker and End Marker are set at the start time and stop time of measurement, respectively. When the User defined radio button is selected, Start Marker and End Marker are set according to settings in [2] and [5].

[2] Start  ms

Sets the Start Marker position in elapsed time from the measurement starting time. The following units are available.

ms  
s  
min  
hour

[3]

Sets Start Marker at the leftmost position in the current screen.

[4]

Sets Start Marker at the measurement start time.

[5] Range

Set the interval between Start Marker and End Marker. The following units are available.

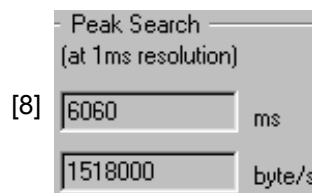
ms  
s  
min  
hour



Sets Range so that End Marker is set to the rightmost position in the current screen.



Sets Range so that End Marker is set at the measurement stop time.



Shows current position of Peak Search Marker and traffic intensity at the position.



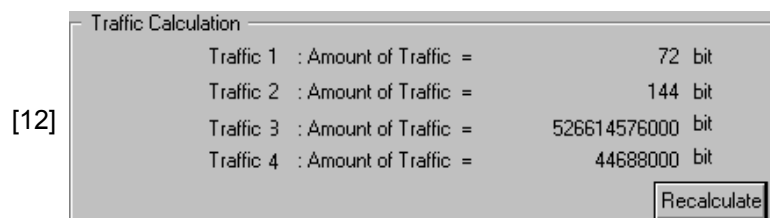
Clears Peak Search Marker.



Searches the point (ascending direction/descending direction) at which the traffic intensity exceeds Marker 1. From the current Peak Search Marker, searches the point at which the traffic intensity exceeds Marker 1 and then sets Peak Search Marker again at the position. The zone between Start Marker and End Marker is searched.

**Notes:**

1. To perform Peak Search, it is necessary to display Marker 1 on [11] in Section 4.2.1 “Main screen”.
2. Peak Search targets traffic of 1-ms resolution. Therefore, if [16] resolution in Section 4.2.1 “Main screen” is set other than 1 ms, Peak Search cannot be performed.



Shows the total value of traffic intensity between Start Marker and End Marker for each flow. Click the [Recalculate] button to recalculate the total value.