MU181800A
12.5 GHz Clock Distributor
MU181800B
14 GHz Clock Distributor
Operation Manual

Sixth Edition

- **For safety and warning information, please read this manual before attempting to use the equipment.**
- **Additional safety and warning information is provided in the MP1800A Signal Quality Analyzer Installation Guide and the MT1810A 4 Slot Chassis Installation Guide. Please also refer to one of these documents before using the equipment.**
- **Keep this manual with the equipment.**

ANRITSU CORPORATION

Document No.: M-W2751AE-6.0

Safety Symbols

To prevent the risk of personal injury or loss related to equipment malfunction, Anritsu Corporation uses the following safety symbols to indicate safety-related information. Ensure that you clearly understand the meanings of the symbols BEFORE using the equipment. Some or all of the following symbols may be used on all Anritsu equipment. In addition, there may be other labels attached to products that are not shown in the diagrams in this manual.

Symbols used in manual

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

⚠ WARNING This indicates a hazardous procedure that could result in serious injury or death if not performed properly.

⚠ CAUTION This indicates a hazardous procedure or danger that could result in light-to-severe injury, or loss related to equipment malfunction, if proper precautions are not taken.

Safety Symbols Used on Equipment and in Manual

The following safety symbols are used inside or on the equipment near operation locations to provide information about safety items and operation precautions. Ensure that you clearly understand the meanings of the symbols and take the necessary precautions BEFORE using the equipment.

This indicates a prohibited operation. The prohibited operation is indicated symbolically in or near the barred circle.

This indicates an obligatory safety precaution. The obligatory operation is indicated symbolically in or near the circle.

This indicates a 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.

MU181800A 12.5 GHz Clock Distributor
MU181800B 14 GHz Clock Distributor
Operation Manual

01 February 2008 (First Edition)
20 June 2013 (Sixth Edition)

Equipment Certificate

Anritsu Corporation certifies that this equipment was tested before shipment using calibrated measuring instruments with direct traceability to public testing organizations recognized by national research laboratories, including the National Institute of Advanced Industrial Science and Technology, and the National Institute of Information and Communications Technology, and was found to meet the published specifications.

Anritsu Warranty

Anritsu Corporation will repair this equipment free-of-charge if a malfunction occurs within one year after shipment due to a manufacturing fault. However, software fixes will be made in accordance with the separate Software End-User License Agreement. Moreover, Anritsu Corporation will deem this warranty void when:

- The fault is outside the scope of the warranty conditions separately described in the operation manual.
- The fault is due to mishandling, misuse, or unauthorized modification or repair of the equipment by the customer.
- The fault is due to severe usage clearly exceeding normal usage.
- The fault is due to improper or insufficient maintenance by the customer.
- The fault is due to natural disaster, including fire, wind, flooding, earthquake, lightning strike, or volcanic ash, etc.
- The fault is due to damage caused by acts of destruction, including civil disturbance, riot, or war, etc.
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- The fault is due to use of non-specified peripheral or applied equipment or parts, or consumables, etc.
- The fault is due to use of a non-specified power supply or in a non-specified installation location.
- The fault is due to use in unusual environments(Note).
- The fault is due to activities or ingress of living organisms, such as insects, spiders, fungus, pollen, or seeds.

In addition, this warranty is valid only for the original equipment purchaser. It is not transferable if the equipment is resold.

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Note:
For the purpose of this Warranty, "unusual environment" means use:

- In places of direct sunlight
- In dusty places
- Outdoors
- In liquids, such as water, oil, or organic solvents, and medical fluids, or places where these liquids may adhere
- In salty air or in places where chemically active gases (SO_2, H_2S, Cl_2, NH_3, NO_2, or HCl, etc.) are present
- In places where high-intensity static electric charges or electromagnetic fields are present
- In places where abnormal power voltages (high or low) or instantaneous power failures occur
- In places where condensation occurs
- In the presence of lubricating oil mists
- In places at an altitude of more than 2,000 m
- In the presence of frequent vibration or mechanical shock, such as in cars, ships, or airplanes

Anritsu Corporation Contact

In the event of this equipment malfunctions, contact an Anritsu Service and Sales office. Contact information can be found on the last page of the printed version of this manual, and is available in a separate file on the CD version.

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   ii) If this Software is used in conjunction with other non-Anritsu-approved software.
   iii) Recovery of lost or damaged data.
   iv) If this Software or the Equipment has been modified, repaired, or otherwise altered without Anritsu's prior approval.
   v) For any other reasons out of Anritsu's direct control and responsibility, such as but not limited to, natural disasters, software virus infections, etc.

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If Anritsu suffers any loss, financial or otherwise, due to your violation of the terms of this EULA, Anritsu shall have the right to seek proportional damages from you.

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Upon termination of this EULA in accordance with item 5, you shall cease all use of this Software immediately and shall as directed by Anritsu either destroy or return this Software and any backup copies, full or partial, to Anritsu.

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If matters of dispute or items not covered by this EULA arise, they shall be resolved by negotiations in good faith between you and Anritsu.

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CE Conformity Marking

Anritsu affixes the CE conformity marking on the following product(s) in accordance with the Council Directive 93/68/EEC to indicate that they conform to the EMC and LVD directive of the European Union (EU).

CE marking

1. Product Model

Plug-in Units: MU181800A 12.5 GHz Clock Distributor
MU181800B 14 GHz Clock Distributor

2. Applied Directive and Standards

When the MU181800A 12.5 GHz Clock Distributor or MU181800B 14 GHz Clock Distributor is installed in the MP1800A or MT1810A, the applied directive and standards of this unit conform to those of the MP1800A or MT1810A main frame.

PS: About main frame
Please contact Anritsu for the latest information on the main frame types that MU181800A/B can be used with.

C-tick Conformity Marking

Anritsu affixes the C-tick marking on the following product(s) in accordance with the regulation to indicate that they conform to the EMC framework of Australia/New Zealand.

C-Tick marking

1. Product Model

Plug-in Units: MU181800A 12.5 GHz Clock Distributor
MU181800B 14 GHz Clock Distributor

2. Applied Directive and Standards

When the MU181800A 12.5 GHz Clock Distributor or MU181800B 14 GHz Clock Distributor is installed in the MP1800A or MT1810A, the applied directive and standards of this unit conform to those of the MP1800A or MT1810A main frame.

PS: About main frame
Please contact Anritsu for the latest information on the main frame types that MU181800A/B can be used with.

About This Manual

A testing system combining an MP1800A Signal Quality Analyzer or MT1810A 4 Slot Chassis mainframe, module(s), and control software is called a Signal Quality Analyzer Series. The operation manuals of the Signal Quality Analyzer Series consist of separate documents for the installation guide, the mainframe, remote control operation, module(s), and control software, as shown below.

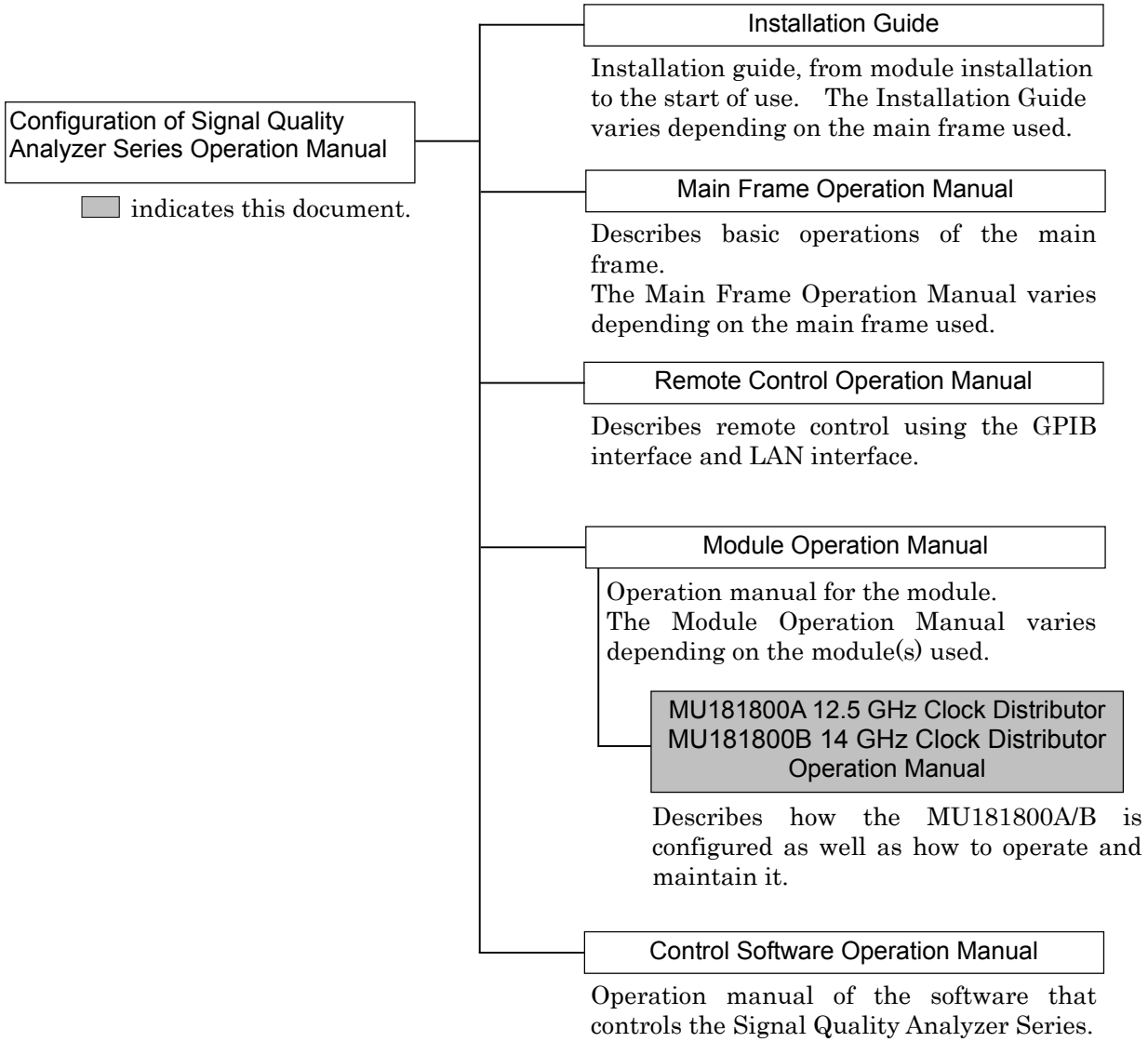


Table of Contents

IV.

Chapter 1 Overview

This chapter outlines the MU181800A 12.5 GHz Clock Distributor and the MU181800B 14 GHz Clock Distributor (hereafter "this equipment").

1.1 Product Overview

This equipment is a plug-in module for the Signal Quality Analyzer (SQA). It generates and outputs 4 channels (MU181800A) and 5 channels (MU181800B) of a 1/1 clock signal synchronized to an externally input clock signal for R&D and manufacturing of various digital communications equipment, modules and devices.

1.2 Product Composition

1.2.1 Standard composition

Table 1.2.1-1 and Table 1.2.1-2 show the standard compositions of the MU181800A/B.

Table 1.2.1-1 Standard composition of MU181800A

Item	Model name/symbol	Product name	Q'ty	Remarks
Main unit	MU181800A	12.5 GHz Clock Distributor	1	
Accessory	Z0897A	MP1800A Manual CD	1	CD-ROM version
	Z0918A	MX180000A Software CD	1	CD-ROM version

Table 1.2.1-1 Standard composition of MU181800B

Item	Model name/symbol	Product name	Q'ty	Remarks
Main unit	MU181800B	14 GHz Clock Distributor	1	
Accessory	Z0897A	MP1800A Manual CD	1	CD-ROM version
	Z0918A	MX180000A Software CD	1	CD-ROM version

1.2.2 Option

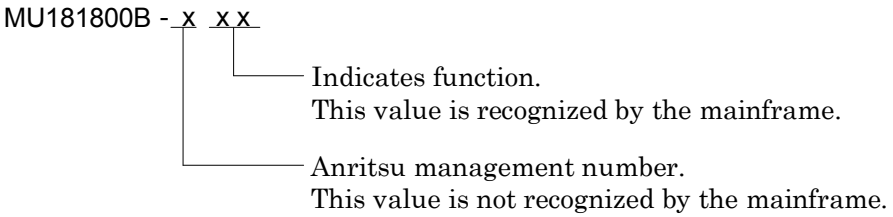
Table 1.2.2-1 shows the option for the the MU181800B. All options are sold separately.

Table 1.2.2-1 Option for MU181800B

Model name	Product name	Remarks
MU181800B-005*	14.1GHz Extension	

Note:

Option name format is as follows:



*: Notes on MU181800B Option Model Display
The model and name of the MU181800B-005 option are recorded on the front panel of each module. Although the Option screen of the software does not show the option name, the operation is guaranteed between 0.1 and 14.1 GHz.

1.2.3 Application parts

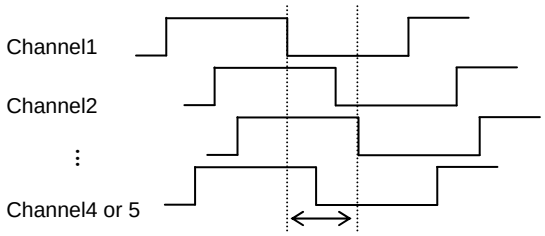
Table 1.2.3-1 shows the application parts for the MU181800A/B. All application parts are sold separately.

Table 1.2.3-1 Application parts

Model name/symbol	Product	Q'ty	Remarks
J1137	Terminator	1	50 Ω SMA
J1349A	Coaxial cable, 0.3 m	1	SMA connector
J1343A	Coaxial cable, 1 m	1	SMA connector
W2751AE	Operation Manual	1	Printed version

1.3 Specifications

Table 1.3.1-1 Specifications

Item		Specifications	Remarks
Clock input	Operating frequency	0.1 to 12.5 GHz (MU181800A) 0.1 to 14.0 GHz (MU181800B) 0.1 to 14.1 GHz (MU181800B-005)	
	Level	0.4 to 2.0 Vp-p	
	Waveform	≤0.5 GHz square wave >0.5 GHz square or sine wave	
	Connector	SMA	
	Termination	50 Ω/GND	
Clock output	Channel	Single-end, 4 systems (MU181800A) Single-end, 5 systems (MU181800B)	
	Interchannel skew	≤10 ps (at 12.5 GHz, MU181800A) ≤10 ps (at 14.0 GHz, MU181800B) ≤10 ps (at 14.1 GHz, MU181800B-005)  	
	Level	MU181800A: Min. 0.4 Vp-p, Max. 1.0 Vp-p MU181800B: Min. 0.4 Vp-p, Max. 1.2 Vp-p (≤1 GHz) Min. 0.4 Vp-p, Max. 1.0 Vp-p (>1 GHz)	
	Duty	50 ±10% at Clock input duty 50%	
	Connector	SMA	
	Termination	50 Ω/GND	
Mechanical performance	Dimensions	234 mm (W) × 21 mm (H) × 175 mm (D) (Compact-PCI 1 slot) (Protrusion excluded)	
	Mass	≤1.5 kg	
Environmental performance	Storage temperature range	–20 to +60°C (recommended range: +5 to +30°C)	
	Storage humidity range	20 to 80% (recommended range: 40 to 75%)	

Chapter 2 Preparation before Use

This chapter describes preparations required before using the MU181800A/B.

2.1 Installation to Signal Quality Analyzer

For information on how to install the MU181800A/B to the Signal Quality Analyzer and how to turn on the power, refer to Chapter 2 "Preparation before Use" in the Signal Quality Analyzer Series Installation Guide.

2.2 How to Operate Application

The modules connected to the Signal Quality Analyzer are controlled by operating the MX180000A Signal Quality Analyzer Control Software (hereinafter, referred to as "MX180000A").

For information on how to start up, shut down, and operate MX180000A, refer to the MX180000A Signal Quality Analyzer Control Software Operation Manual.

2.3 Preventing Damage

Be sure to observe the rating voltage ranges when connecting input and output of the MU181800A/B. Otherwise, the MU181800A/B may become damaged.

⚠ CAUTION

1. **When signals are input to this MU181800A/B, avoid excessive voltage beyond the rating. Otherwise, the circuit may be damaged.**

2. **Use a 50 Ω/GND terminator at the output. Never feed any current to the output.**

3. **As a countermeasure against static electricity, ground other devices to be connected (including experimental circuits) with ground wires before connecting the I/O connector.**

4. **The outer conductor and core of the coaxial cable may become charged as a capacitor. Use metal like a copper wire to discharge electricity between the outer conductor and core before use.**

5. **Never open the MU181800A/B. If you open it and sufficient performance cannot be obtained, we may decline to repair the MU181800A/B.**

6. **To protect the MU181800A/B from electrostatic discharge failure, a conductive sheet should be placed onto the workbench, and the operator should wear an electrostatic discharge wrist strap. Connect the ground connection end of the wrist strap to the conductive sheet or to the ground terminal of the mainframe.**

Chapter 3 Panel Layout and Connectors

This chapter describes the panels and connectors of the MU181800A/B.

3.1 Panel Layout

3.1.1 Panel Layout of MU181800A

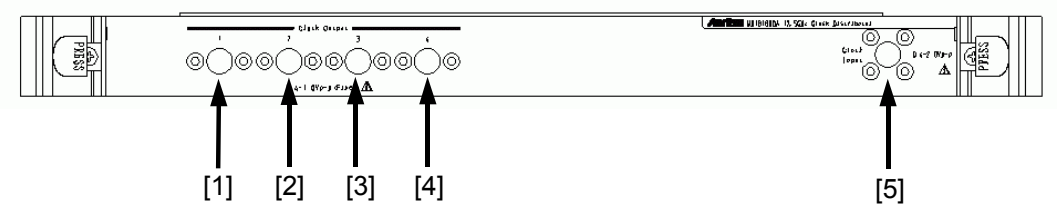


Fig. 3.1.1-1 MU181800A Panel

Table 3.1.1-1 Name and Function of Each Part on MU181800A panel

No.	Name	Description
[1]	Clock Output Channel 1	Output channel 1 for 4-chennel distributed signal synchronous with the clock signal input to the Clock Input connector.
[2]	Clock Output Channel 2	Output channel 2 for 4-chennel distributed signal synchronous with the clock signal input to the Clock Input connector.
[3]	Clock Output Channel 3	Output channel 3 for 4-chennel distributed signal synchronous with the clock signal input to the Clock Input connector.
[4]	Clock Output Channel 4	Output channel 4 for 4-chennel distributed signal synchronous with the clock signal input to the Clock Input connector.
[5]	Clock Input	Connector to input the clock to be distributed.

3.1.2 Panel Layout of MU181800B

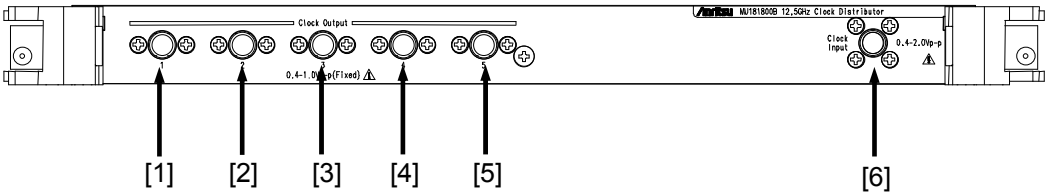


Fig. 3.1.2-1 MU181800B Panel

Table 3.1.2-1 Name and Function of Each Part on MU181800B panel

No.	Name	Description
[1]	Clock Output Channel 1	Output channel 1 for 5-chennel distributed signal synchronous with the clock signal input to the Clock Input connector.
[2]	Clock Output Channel 2	Output channel 2 for 5-chennel distributed signal synchronous with the clock signal input to the Clock Input connector.
[3]	Clock Output Channel 3	Output channel 3 for 5-chennel distributed signal synchronous with the clock signal input to the Clock Input connector.
[4]	Clock Output Channel 4	Output channel 4 for 5-chennel distributed signal synchronous with the clock signal input to the Clock Input connector.
[5]	Clock Output Channel 5	Output channel 5 for 5-chennel distributed signal synchronous with the clock signal input to the Clock Input connector.
[6]	Clock Input	Connector to input the clock to be distributed.

3.2 Inter-Module Connection

Fig. 3.2-1 shows a connection example between the MU181800A/B, MU181000A 12.5 GHz Synthesizer (hereinafter, referred to as "MU181000A"), and MU181020A 12.5 Gbit/s PPG (hereinafter, referred to as "MU181020A") that are installed into a mainframe. Follow Fig 3.2-1 to connect the instruments. In this section, drawings of the MU181800A are used for explanation, while the contents are common to the MU181800B.

Note:

Avoid static electricity when handling the devices.

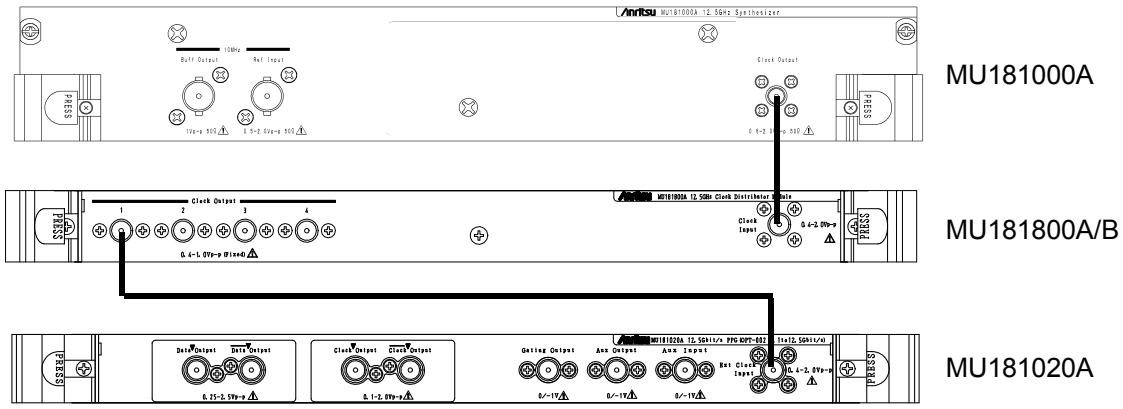


Fig. 3.2-1 Example of inter-module connection

1. Connect the 3-pin power cord of the mainframe to the power receptacle. Be sure to use the 3-pin power cord supplied with the mainframe and a 3-pin receptacle.
2. Connect the Clock Output connector of the MU181000A and the Clock Input connector of the MU181800A/B, using a coaxial cable.
3. Connect the Clock Output connector of the MU181800A/B and the Ext Clock Input connector of the MU181020A, using a coaxial cable.

⚠ CAUTION

If an excessive voltage is applied to the input connector, the protective circuit may be damaged. Avoid any input beyond the rating. If there is any possibility of the rating being exceeded, check that the input signal is within the rating before connection.

To prevent damage due to static electricity charged inside the coaxial cable, ground the core of the coaxial cable in contact to discharge it before connection.

Chapter 4 Configuration of Setup Dialog Box

This chapter describes the configuration of the setup dialog box for the MU181800A/B.

4.1 Configuration of Entire Setup Dialog Box

The configuration of the setup dialog box when the MU181800A/B is inserted into a mainframe is shown below.

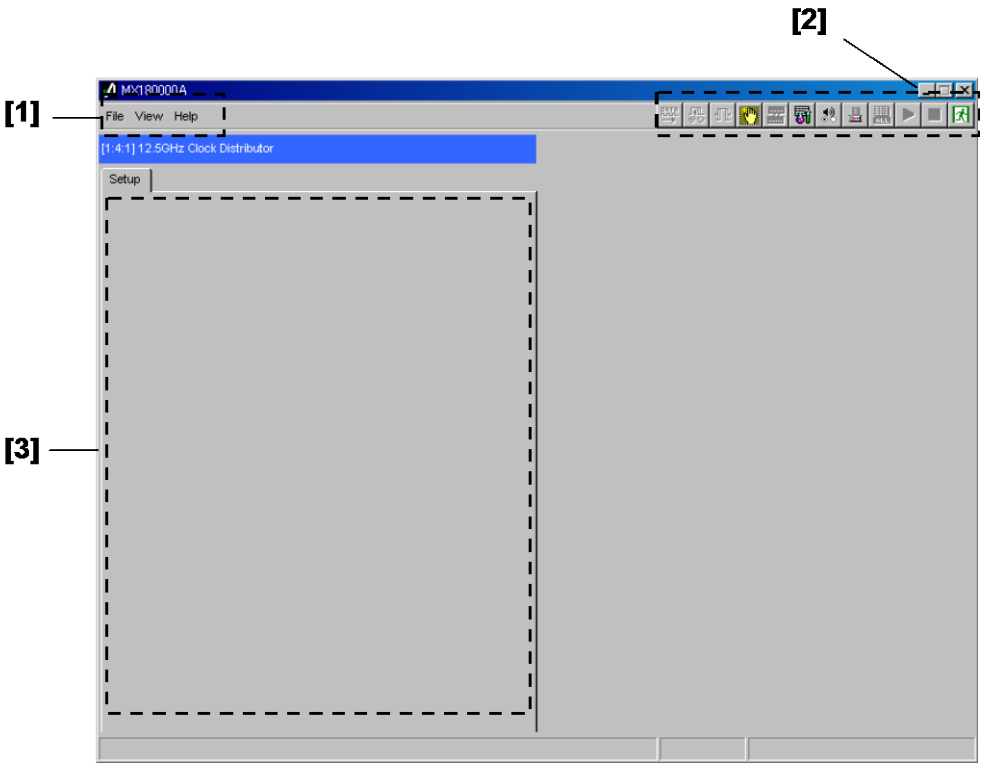


Fig. 4.1-1 Configuration of entire setup dialog box for MU181800A/B

The setup dialog box consists of three blocks as shown in Fig 4.1-1. Table 4.1-1 describes each of the blocks.

Table 4.1-1 Functions of blocks

No.	Block	Function
[1]	Menu bar	Selects the settings related to the entire device. Refer to the MX180000A Signal Quality Analyzer Control Software Operation Manual for details.
[2]	Module function buttons	Shortcut buttons for the function items specific to the displayed module. Users can customize the pre-defined function buttons according to their own applications. Refer to the MX180000A Signal Quality Analyzer Control Software Operation Manual for details.
[3]	Operation window	This window is provided to configure the setting specific to each module, but the MU181800A/B has no specific setting.

Chapter 5 Use Example

This chapter provides a specific example of measurement using the MU181800A/B.

5.1 MU181800A/B Usage Example

A connection example for using the MU181800A/B is shown below. In this section, drawings of the MU181800A are used for explanation, while the contents are common to the MU181800B.

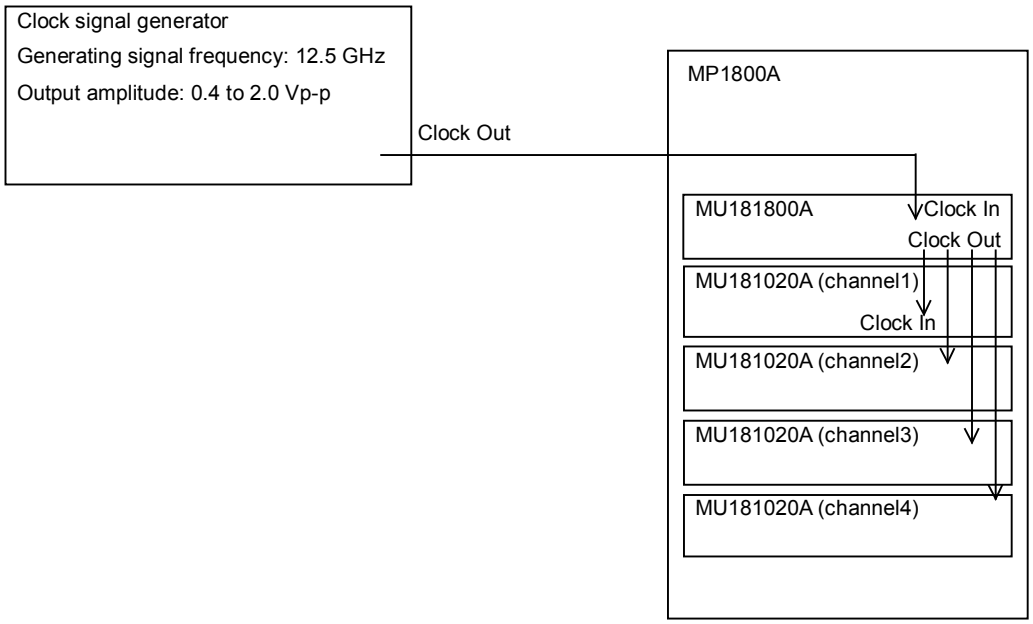


Fig. 5.1-1 Connection diagram

1. Prepare a clock signal generator to supply a clock to the MU181800A. The input interface conditions for the MU181800A are as follows:

   Input level: 0.4 to 2.0 Vp-p
   Frequency: 12.5 GHz
   Waveform: Square or sine wave

2. Connect the Clock Input connector of the MU181800A and the Clock Output connector of the clock signal generator, using a coaxial cable.
3. Connect the four Clock Output connectors (five in the case of MU181800B) to the each Clock Input connector of the MU181020A modules using coaxial cables.
4. Set the pattern to be generated, referring to the operation manual of the MU181020A.
5. When output of the clock supplied from the clock signal generator is set to ON, a synchronized clock is supplied from Clock Output of the MU181800A to each MU181020A Clock Input and the four (five in the case of MU181800B) MU181020A units operate in synchrony.

Chapter 6 Performance Test

This chapter describes the performance testing of the MU181800A/B.

6.1 Overview

Performance tests are executed to check that the major functions of the MU181800A/B meet the required specifications. Execute performance tests at acceptance inspection, operation check after repair, and periodic (once every six months) testing.

6.2 Devices Required for Performance Tests

Before starting performance tests, warm up the MU181800A/B and the measuring instruments for at least 30 minutes. Table 6.2-1 shows the devices required for performance tests.

Table 6.2-1 Devices required for MU181800A/B performance test

Device	Required Performance	
Synthesizer	Generating frequency:	0.1 to 12.5 GHz (MU181800A) 0.1 to 14.0 GHz (MU181800B) 0.1 to 14.1 GHz (MU181800B-005)
	Output amplitude:	0.4 to 2.0 Vp-p
Sampling oscilloscope	Electrical interface:	50 GHz or more band
Trigger signal source (MP1800A + MU181020A, or 1/64 divider supporting 14 GHz)	Generates trigger to observe the sampling oscilloscope waveform	

Note:

Before starting the performance tests, warm up the device under test and the measuring instruments for at least 30 minutes and wait until they become sufficiently stabilized, unless otherwise specified. Additional conditions are required for maximum measurement accuracy: measurements must be performed at room temperature, fluctuations of AC power supply voltage must be small, and noise, vibration, dust, and humidity must be insignificant.

6.3 Performance Test Items

This section describes the following test items.

- Levels at Clock Input and Clock Output

6.3.1 Measuring levels at Clock Input and Clock Output

(1) Specifications

Table 6.3.1-1 Specifications for Clock Input level and Clock Output level

Clock Input level	0.4 to 2.0 Vp-p
Clock Output level	0.4 to 1.0 Vp-p (Fixed)

Test condition

Clock frequency: 0.1 to 12.5 GHz (MU181800A)
0.1 to 14.0 GHz (MU181800B)
0.1 to 14.1 GHz (MU181800B-005)

(2) Connection

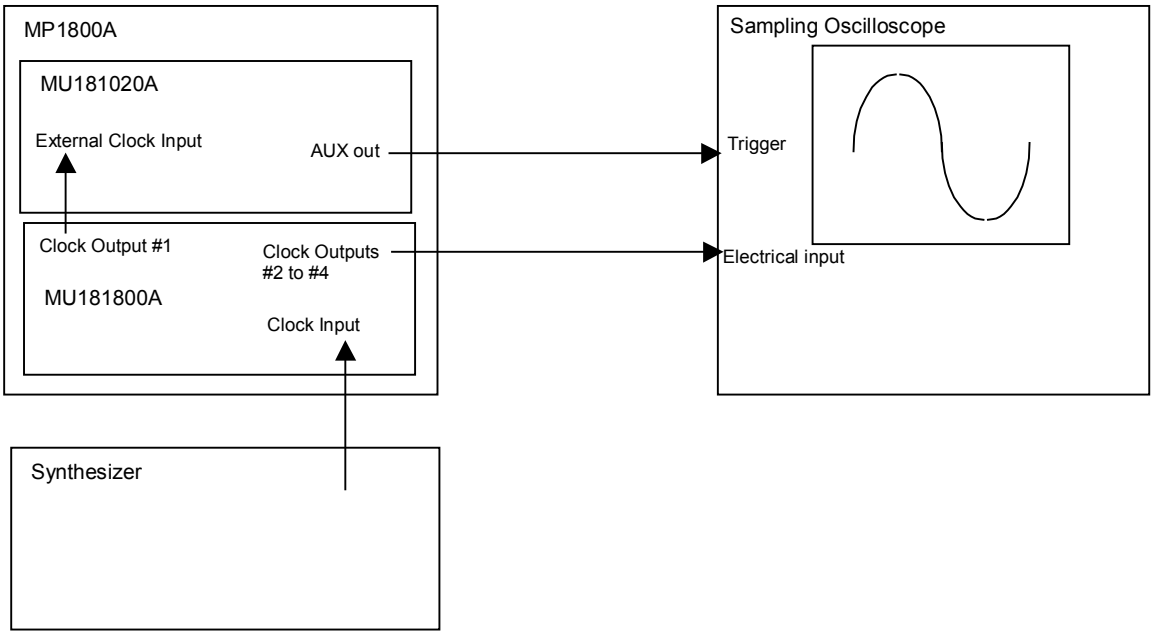


Fig. 6.3.1-1 Connection diagram for Clock Input level and Clock Output level measurement

(3) Procedure

1. Install the MU181800A/B and MU181020A into the MP1800A, connect the cables, and then turn on the power.
2. Turn on the synthesizer and sampling oscilloscope to warm them up
3. Set the AUX output of the MU181020A to a 1/64-divided clock.
4. Input the clock output from the synthesizer to the Clock Input connector of the MU181800A/B.
5. Observe the waveform of Clock Output #2 of the MU181800A/B to check that the Clock Output level meets the specification requirements. (Connect Clock Output #1 used as a trigger for frequencies up to 12.5 GHz to External Clock of the MU181020A; at frequencies higher than 12.5 GHz, connect to a 1/64 divider supporting 14 GHz.)
6. Set the synthesizer output amplitude to 2.0 Vp-p and the oscillation frequency to 12.5 GHz (14 GHz in case of MU181800B); check the Clock Output level in the same way as for channel #5.
7. As shown above, set the synthesizer amplitude and frequency within the operating range of the Clock Input connector of the MU181800A/B to check that the Clock Output waveform is normal.
8. Change the Clock Output channel to #3, and #4 and check the Clock Output level in the same way as for channel #5.
9. Change the clock signal source used as the trigger to #2 and check the level of Clock Output #1 in the same way as for channel #5.

Chapter 7 Maintenance

This chapter describes maintenance of the MU181800A/B.

7.1 Daily Maintenance

- Wipe off any external stains with a cloth damped with diluted mild detergent.
- Vacuum away any accumulated dust or dirt with a vacuum cleaner.
- Tighten any loose parts fixed with screws, using the specified tools.

7.2 Cautions on Storage

Wipe off any dust, soil, or stain on the device prior to storage. Avoid storing the device in any of the following locations:

- Where there is direct sunlight
- Where there is dust
- Where humidity is high and dew may accumulate
- Where chemically active gases are present
- Where the device may become oxidized
- Where strong vibrations are present
- Under the following temperature and humidity conditions:
  Temperature range of ≤–20°C or ≥60°C
  Humidity range of ≥85%

Recommended storage conditions

In addition to the abovementioned storage cautions, the following environment conditions are recommended for long-term storage.

- Temperature range of 5 to 30°C
- Humidity range of 40 to 75%
- Slight daily fluctuation in temperature and humidity

7.3 Transportation

Use the original packing materials, if possible, when packing the MU181800A/B for transport. If you do not have the original packing materials, pack the MU181800A/B according to the following procedure. When handling the MU181800A/B, always wear clean gloves, and handle it gently so as not to damage it.

<Procedure>

1. Use a dry cloth to wipe off any stain or dust on the exterior of the MU181800A/B.
2. Check for loose or missing screws.
3. Provide protection for structural protrusions and parts that can easily be deformed, and wrap the MU181800A/B with a sheet of polyethylene. Finally, cover with moisture-proof paper.
4. Place the wrapped MU181800A/B into a cardboard box, and tape the flaps with adhesive tape. Furthermore, store it in a wooden box as required by the transportation distance or method.
5. During transportation, place it under an environment that meets the conditions described in Section 7.2 “Cautions on Storage”.

7.4 Calibration

Regular maintenance such as periodic inspections and calibration is essential for the Signal Quality Analyzer Series for long-term stable performance. Regular inspection and calibration are recommended for using the Signal Quality Analyzer Series in its prime condition at all times. The recommended calibration cycle after delivery of the Signal Quality Analyzer Series is twelve months.

If you require support after delivery, contact an Anritsu Service and Sales office. Contact information can be found on the last page of the printed version of this manual, and is available in a separate file on the CD version.

We may not provide calibration or repair if any of the following cases apply.

- Seven or more years have elapsed after production and parts for the instrument are difficult to obtain, or it is determined that reliability cannot be maintained after calibration/repair due to significant wear.
- Circuit changes, repair, or modifications are done without our approval.
- It is determined that the repair cost would be higher than the price of a new item.

7.5 Disposal

Confirm the notes described in the Signal Quality Analyzer Series Installation Guide and observe national and local regulations when disposing of the MU181800A/B.

Chapter 8 Troubleshooting

This chapter describes how to check whether a failure has arisen when an error occurs during the operation of the MU181800A/B.

8.1 Problems Discovered during Module Replacement

Table 8.1-1 Remedies for problems discovered during replacement of MU181800A/B

Symptom	Location to Check	Remedy
A module is not recognized.	Is the module installed properly?	Install the module again by referring to Section 2.3 "Installing and Removing Modules" in the installation guide.
	Are the appropriate modules installed?	To check the appropriate modules and software version of the MU181800A/B, access to "MP1800 Series Signal Quality" on your Web site (http://www.anritsu.com). Right-click the "MP1800 Series Signal Quality" and you can access to your area website. If the appropriate modulus are not recognized, it may have failed. Contact an Anritsu Service and Sales office. Contact information can be found on the last page of the printed version of this manual, and is available in a separate file on the CD version.

8.2 Problems Discovered during Use of MU181800A/B

Table 8.2-1 Remedies for problems discovered during use of MU181800A/B

Symptom	Location to Check	Remedy
Output waveform is defective	Is the cable loose?	Tighten the connector.
	Is the unused output connector terminated?	Terminate it properly.
	Do the cables used have good high-frequency characteristics?	Use application part J1349A: coaxial cable, 0.3 m.
	Is the input clock signal used within the specification range?	Connect a signal that meets the input specifications for Clock Input.
	Is the measurement system for waveforms set as shown in Section 6.3 "Performance Test Item?"	Check the performance test procedure again.

If a problem cannot be solved using any of the items listed above, perform initialization and check the items again. If the problem still occurs, contact an Anritsu Service and Sales office. Contact information can be found on the last page of the printed version of this manual, and is available in a separate file on the CD version.

Appendix

A.1 Performance Test Result Sheet

A.1.1 MU181800A Performance Test Result Sheet

Device name: MU181800A 12.5 GHz Clock Distributor

Serial No.: _____

Ambient temperature: _____ °C

Relative humidity: _____ %

Table A.1.1-1 Results of level measurement at Clock Input and Clock Output

Frequency [MHz]	Clock Output Level Specifications	Clock Output Level Measured Result [Vp-p]		
		Clock Input Level [Vp-p]		
		0.4	1.0	2.0
12500	0.4 to 1.0 Vp-p (Fixed)			
10000				
5000				
1000				
100				

A.1.2 MU181800B Performance Test Result Sheet

Device name: MU181800B 14 GHz Clock Distributor

Serial No.: _____

Ambient temperature: _____ °C

Relative humidity: _____ %

Table A.1.2-1 Results of level measurement at Clock Input and Clock Output

Frequency [MHz]	Clock Output Level Specifications	Clock Output Level Measured Result [Vp-p]		
		Clock Input Level [Vp-p]		
		0.4	1.0	2.0
14100 (Installed Opt-005)	0.4 to 1.0 Vp-p (Fixed)			
14000				
12500				
10000				
5000				
1000				
100				