

# **MP1800A Signal Quality Analyzer Operation Manual**

**Ninth Edition**

- For safety and warning information, please read this manual before attempting to use the equipment.
- Additional safety and warning information is provided within the MP1800A Signal Quality Analyzer Installation Guide. Please also refer to this document before using the equipment.
- Keep this manual with the equipment.

**ANRITSU CORPORATION**

# 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.

MP1800A  
Signal Quality Analyzer  
Operation Manual

27 November 2006 (First Edition)  
18 November 2014 (Ninth Edition)

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## Notes On Export Management

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This product and its manuals may require an Export License/Approval by the Government of the product's country of origin for re-export from your country.

Before re-exporting the product or manuals, please contact us to confirm whether they are export-controlled items or not.

When you dispose of export-controlled items, the products/manuals need to be broken/shredded so as not to be unlawfully used for military purpose.

## Cautions against computer virus infection

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- Copying files and data  
Only files that have been provided directly from Anritsu or generated using Anritsu equipment should be copied to the instrument.  
All other required files should be transferred by means of USB or CompactFlash media after undergoing a thorough virus check.
- Adding software  
Do not download or install software that has not been specifically recommended or licensed by Anritsu.
- Network connections  
Ensure that the network has sufficient anti-virus security protection in place.

## Lifetime of Parts

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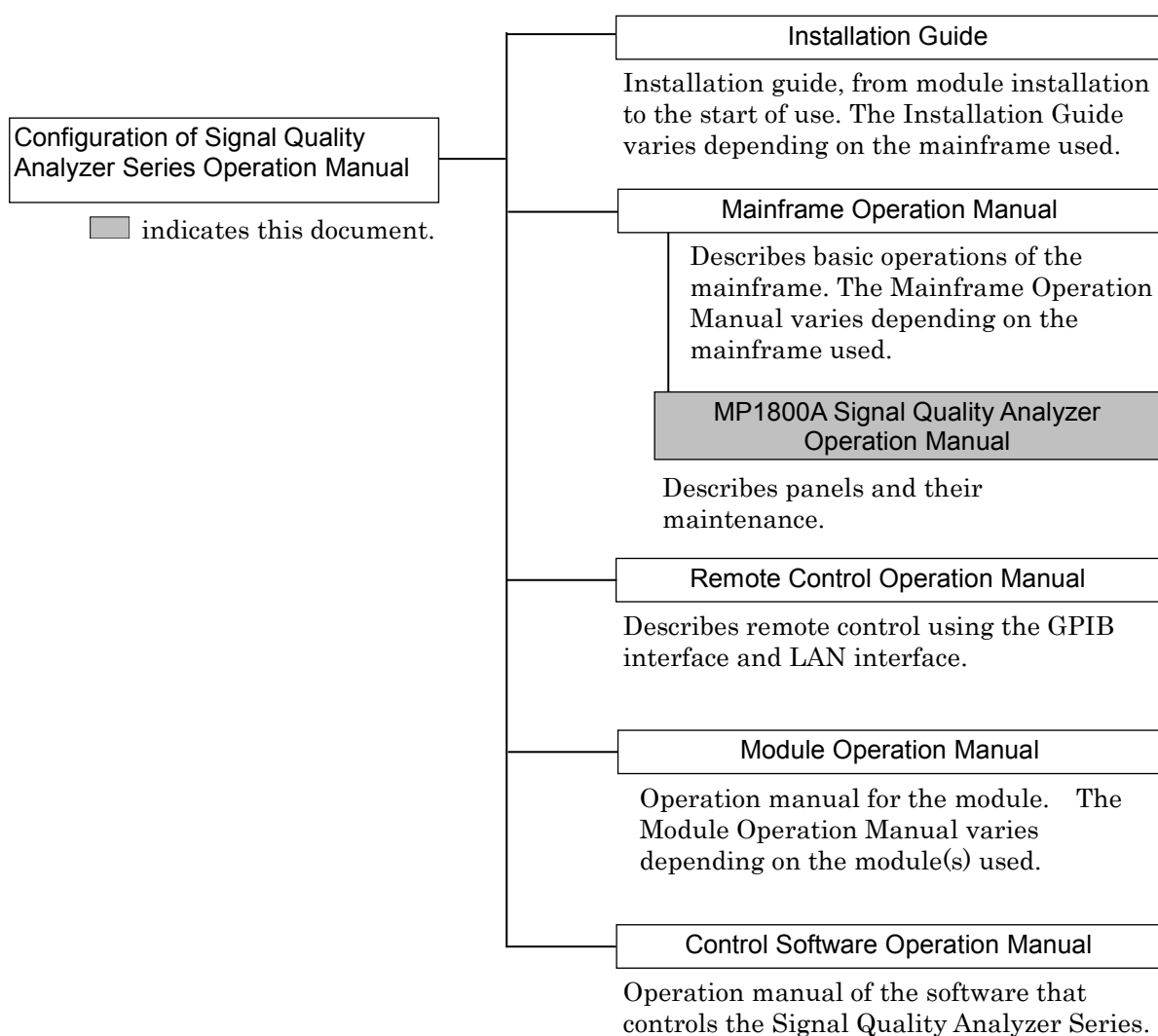
The life span of certain parts used in this instrument is determined by the operating time or the power-on time. Due consideration should be given to the life spans of these parts when performing continuous operation over an extended period. These parts must be replaced at the customer's expense even if within the guaranteed period described in Warranty at the beginning of this manual.

LCD: 40000 hours



## 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.



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# *Chapter 1 Overview*

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This chapter provides an overview and the specifications of the MP1800A Signal Quality Analyzer (hereinafter, referred to as “MP1800A”).

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## **1.1 Product Overview**

Various plug-in modules (hereinafter, referred to as “module”) can be installed into the MP1800A, to support research, development and production of module devices for the optical communication market or interconnection within a Gbit/s class high-speed device. The MP1800A is also useful for research and development for the next-generation communication market, including optical packet transmission.

Up to 6 modules can be installed into the MP1800A. For the MU181020A 12.5 Gbit/s PPG and MU181040A 12.5 Gbit/s ED, among the installable modules, the number of controllable modules can be increased to 2, 4 or 6 by selecting an optimal option to the MP1800A. The MP1800A is equipped with LCDs, keys and a rotary encoder for easy operation. Remote control can also be performed by adding the GPIB or LAN options.

The latest information on modules that can be installed to the MP1800A is available on the Anritsu website at <http://www.anritsu.com>.



## 1.2 Product Configuration

### 1.2.1 Standard Configuration

Table 1.2.1-1 shows the standard configuration of the MP1800A. The latest information is available on the Anritsu website.

<http://www.anritsu.com/en-US/Products-Solutions/Products/MP1800A.aspx>

**Table 1.2.1-1 Standard Configuration of MP1800A**

Item	Model	Product Name	Q'ty	Remarks
Main unit	MP1800A	Signal Quality Analyzer	1	
Accessories	Z0306A	Wrist strap	1	
	Z0897A	Operation Manual	1	CD-ROM
		Power Cord	1	
	B0329G	Front cover (3/4MW4U)	1	
	B0574A	MP1800A side protective cover	1	
	Z0541A	USB mouse	1	
	Z0918A	MX180000A Software CD	1	CD-ROM
	G0342A	ESD Discharger	1	
	J1627A	GND connection cable	1	

## 1.2.2 Options

Table 1.2.2-1 shows the options for the MP1800A. All options are sold separately.

**Table 1.2.2-1 Options Installed at Shipment**

Model	Product Name	Remarks
MP1800A-x01	GPIB	GPIB remote interface
MP1800A-x02	LAN	LAN remote interface
MP1800A-x07 *	OS Upgrade to Windows7	Upgrades the OS from Windows XP to Windows 7.
MP1800A-014	2-slot for PPG and/or ED	Enables control of 2 units of the MU181020A 12.5 Gbit/s PPG or MU181040A 12.5 Gbit/s ED in total.
MP1800A-015	4-slot for PPG and/or ED	Enables control of 4 units of the MU181020A 12.5 Gbit/s PPG or MU181040A 12.5 Gbit/s ED in total.
MP1800A-016	6-slot for PPG and/or ED	Enables control of 6 units of the MU181020A 12.5 Gbit/s PPG or MU181040A 12.5 Gbit/s ED in total.
MP1800A-032	32Gbit/s PPG and/or ED Support	Enables control of 4 units of the MU183020A 28G/32Gbit/s PPG, MU183021A 28G/32Gbit/s 4ch PPG, MU183040A 28G/32Gbit/s ED, or MU183041A 28G/32Gbit/s 4ch ED in total.

\*: When the MP1800A-x07 option is installed to your MP1800A, make sure to use the MX180000A Signal Quality Analyzer Control Software whose version is V7.10.00 or later.

## 1.2.3 Optional Accessories

Table 1.2.3-1 shows the optional accessories for the MP1800A. All optional accessories are sold separately.

**Table 1.2.3-1 Optional Accessories**

Model	Product Name	Remarks
J0008	GPIB connection cable, 2.0 m	2 m
Z0917A	Shielded LAN cable, 5 m	Shielded LAN cable, 5 m
Z0922A	English USB keyboard (104 keys)	
W2745AE	MP1800A Signal Quality Analyzer Operation Manual	Printed version
W2747AE	MP1800A Signal Quality Analyzer Installation Guide	Printed version
B0593A	Blank panel	

## 1.3 Specifications

Table 1.3-1 MP1800A Specifications

No.	Item	Specifications
1	Functions	
1.1	Keys	System Alarm, Screen Copy, Remote/Panel Lock, Set, Cancel, Don't care, Customize, Alt, Cursor (↑, ↓, →, ←), BS, A to F, Shift, Start, Stop, Output, Tree View, Jump, TAB
	Key (with LEDs)	System Alarm, Screen Copy, Remote/Panel Lock, Slot Select (1 to 6), Customize, Start, Output
1.2	LEDs	Output, Slot1 to Slot6, Start, Customize, System Alarm, Screen Copy, HDD, Standby, Remote/Panel Lock, Edit, Cursor, Shift, Power
1.3	Functions	Buzzer which sounds during measurement, self diagnostic function, panel lock
1.4	Remote interface	GPIB (when MP1800A-x01 is installed) LAN (when MP1800A-x02 is installed)
1.5	Peripheral connection	VGA output (SVGA), USB (3-port, Revision 1.1)
2	Other	HDD, clock, buzzer
3	Environmental performance	
	Power supply*	AC 100 to 120 V, 200 to 240 V (automatic switching between 100- and 200-V systems), 50 to 60 Hz
	Power consumption	600 VA or less
	Operating temperature range	+5 to +40°C (without condensation)
	Operating humidity range	20 to 80%
	Storage temperature range	-20 to +60°C (Recommended storage temperature range: +5 to +30°C)
	Storage humidity range	20 to 80% (Recommended storage humidity range: 40 to 75%)
4	Mechanical measurements	
	Dimensions	320 mm (W) × 177 mm (H) × 450 mm (D) (Protrusions excluded)
	Mass	≤13.0 kg (excluding modules and blank panels)

\*: Operating voltage: +10% or -15% from the rated voltage

The information on options and application parts for the MP1800A is available on the Anritsu website at <http://www.anritsu.com>.



## *Chapter 2 Preparations*

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This chapter describes preparations for using MP1800A.

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2.1.1	How to use the GND connection cable .....	2-2
2.1.2	How to use the ESD Discharger.....	2-3

## 2.1 Measures Against EOS and ESD

This section describes how to prevent MP1800A from being damaged by electrical over-stress (EOS) or electrostatic discharge (ESD).

### 2.1.1 How to use the GND connection cable

There is a risk of damaging MP1800A due to EOS if MP1800A and other peripheral equipment (including experimental circuits) are not connected to the common ground.

When connecting MP1800A and other peripheral (including experimental circuits), connect other peripheral equipment to the ground terminal of MP1800A's chassis with the GND connection cable before connecting the I/O connectors.

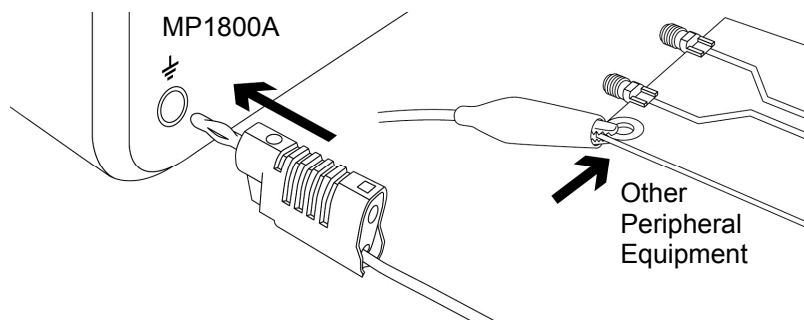


Figure 2.1.1-1 How to Use the GND Connection Cable

### 2.1.2 How to use the ESD Discharger

There is a risk of damaging MP1800A if the coaxial cable you connect to MP1800A is charged electrostatically.

To prevent MP1800A from being damaged by ESD, remove electrostatic charges from the cable by using the ESD Discharger before cabling the connectors.

The ESD Discharger can be used with one of SMA connector (and its compatible connector) and V connector (and its compatible connector).

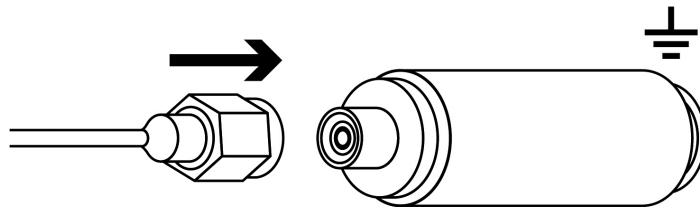


Figure 2.1.2-1 How to Use the ESD Discharger





## *Chapter 3 Panels and Connections*

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This section describes panels and connections of the MP1800A.

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### 3.1 Front Panel

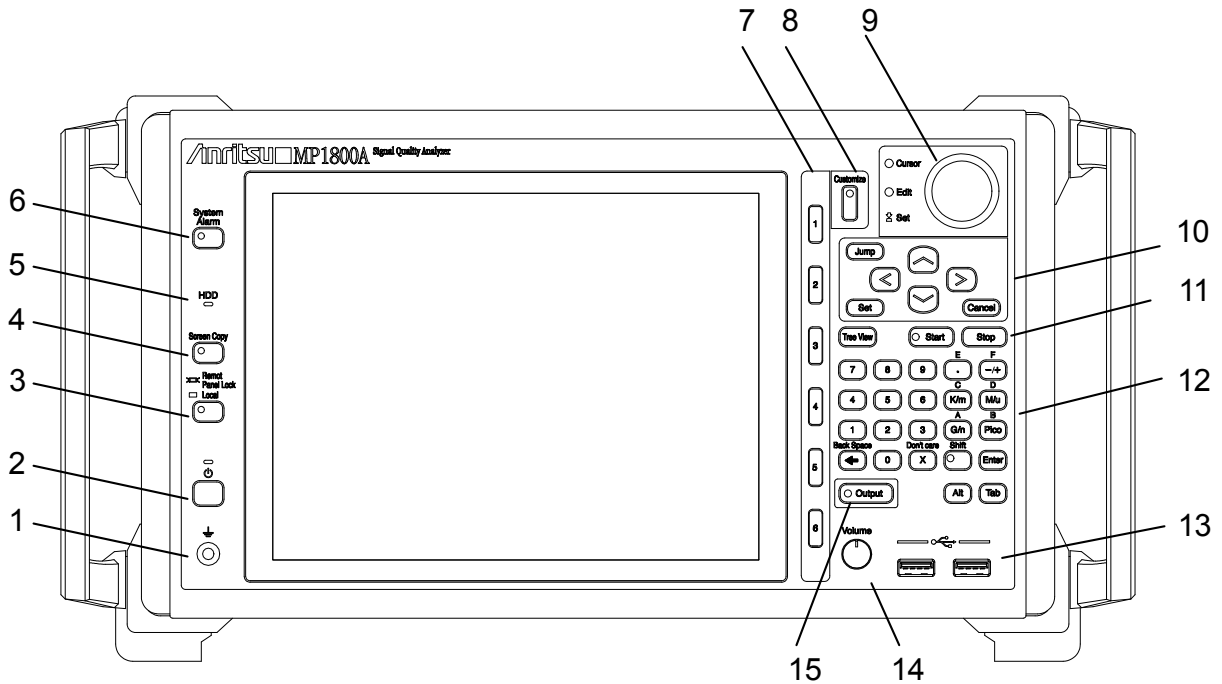


Figure 3.1-1 Front panel

Table 3.1-1 Front panel

No.	Name	Function
1	Earth jack	Connects to the wrist strap during operation, as a countermeasure against static electricity. Be sure to use the wrist strap when using the MP1800A.
2	Power switch	Turns the power to the MP1800A on/off. When this switch is turned off while the power cable is connected, the Standby LED above the switch lights.
3	Remote/Panel Lock	Enables/disables panel operation. When this key is turned to the “on” position, the LED lights and panel operation is disabled.
4	Screen Copy	Files or outputs the contents displayed on the screen to a printer.
5	HDD access LED	Turns on when the internal HDD is accessed.
6	System Alarm	When a system alarm occurs, the LED of this key turns on. A dialog box displaying the system alarm contents appears.
7	Slot keys	Pressing any of 1 to 6 slot keys opens the operation screen for the module installed to the corresponding slot.
8	Customize key	Opens frequently used screens.
9	Rotary encoder	Rotate to increase/decrease the numeric value when the “Edit” LED turns. When the “Cursor” LED lights, it is used to set the operation item. Press the rotary encoder to switch between “Edit” and “Cursor”.

Table 3.1-1 Front panel (Cont'd)

No.	Name	Function
10	Cursor keys	Use the arrow keys to move the cursor on the screen. Press the [Jump] key to move across screen areas of different types. Press the [Set] key to determine the input value, or the [Cancel] key to cancel the input value.
11	Dedicated keys	Press the [Tree View] key to display the Tree screen. Press the [Start]/[Stop] keys to start/stop a module measurement.
12	Numeric keypad	Numeric value or unit keys for input.
13	USB port	Two Revision 1.1 USB ports are provided. Turn the connected measuring instruments off before turning off the MP1800A.
14	Volume	Volume adjustment for measurement error sound
15	Output key	Key for turning on/off the output signal from the MU181020A.

## 3.2 Rear Panel

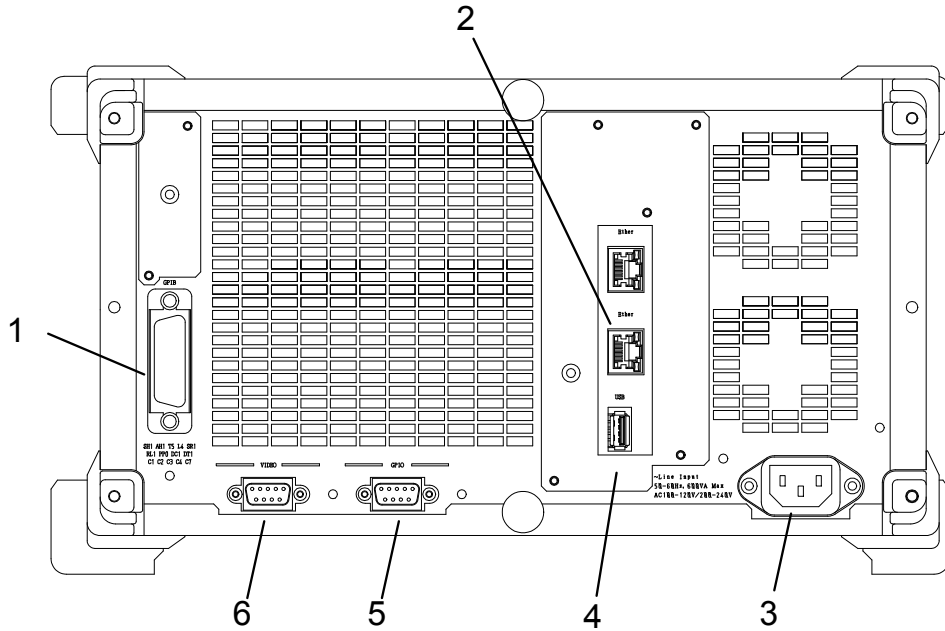
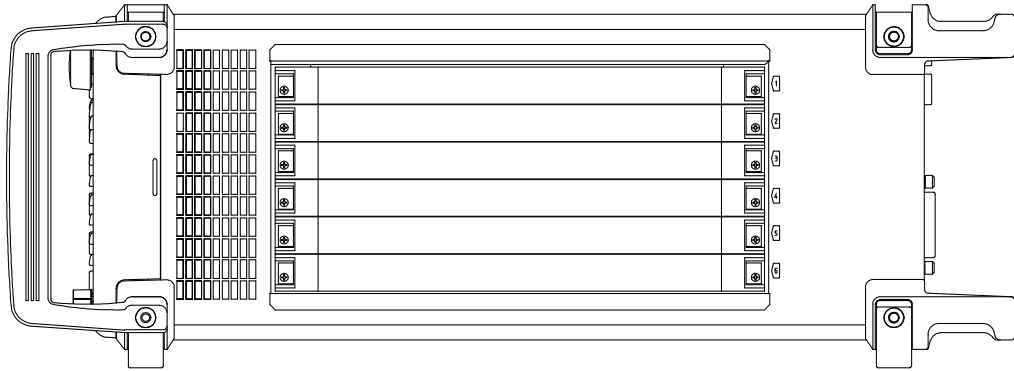


Figure 3.2-1 Rear panel

Table 3.2-1 Rear panel

No.	Name	Function
1	GPIB connector	The GPIB connector that can be used when the MP1800A-x01 GPIB option is installed. Connect a cable to the GPIB connector on the rear panel before turning on the MP1800A. Connection after turning it on may cause failure.
2	Ethernet connector	The RJ45 Ethernet connector that can be used when the MP1800A-x02 LAN option is installed. A 10 BASE-T or a 100 BASE-TX cable can be used. The internal hub provides the same function to the two connectors.  Each connector has two LEDs. The upper one indicates the Speed status: 100 BASE-Tx when the upper LED is on, and 10 BASE-Tx when it is off. The lower LED indicates the Link/Act status. The connector is in Link status when the lower LED is on, No Link status when it is off, and Act status when it blinks.
3	Inlet	Connect to a 100 to 120 Vac or to a 200 to 240 Vac power supply via the 3-pin power cord.
4	USB port	A Revision 1.1 USB port is provided. Turn off the connected measuring instruments before turning off the MP1800A.
5	GPIO	Reserved connector. Currently not available.
6	Video	A connector to display the screen to an external display device. Connect a cable before turning on the MP1800A. Connection after turning it on may cause failure.

### 3.3 Side Panel



**Figure 3.3-1 Side panel**

Six slots for installing modules are provided on the left side. See the *“MP1800A Signal Quality Analyzer Installation Guide”* for how to install/remove the module to/from the slots.



## *Chapter 4 Maintenance*

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This section describes the maintenance of the MP1800A.

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## 4.1 Daily Maintenance

- Wipe off any external stains with a cloth dampened 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.

## 4.2 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:

- In direct sunlight for extended periods
- Outdoors
- In excessively dusty locations
- Where condensation may occur
- In liquids, such as water, oil, or organic solvents, and medical fluids, or places where these liquids may adhere
- In salty air or in place chemically active gases (sulfur dioxide, hydrogen sulfide, chlorine, ammonia, nitrogen dioxide, or hydrogen chloride etc.) are present
- Where toppling over may occur
- In the presence of lubricating oil mists
- At low atmospheric pressure
- In the presence of frequent vibration or mechanical shock, such as in cars, ships, or airplanes
- Under the following temperature and humidity conditions:  
Temperature range of  $\leq -20^{\circ}\text{C}$  or  $\geq 60^{\circ}\text{C}$   
Humidity range of  $\geq 85\%$

### 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



## 4.3 Transportation

Use the original packing materials, if possible, when packing the MP1800A for transport. If you do not have the original packing materials, pack the MP1800A according to the following procedure. When handling the MP1800A, 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 MP1800A.
2. Check for loose or missing screws.
3. Provide protection for structural protrusions and parts that can easily be deformed, and wrap the MP1800A with a sheet of polyethylene. Finally, cover with moisture-proof paper.
4. Place the wrapped MP1800A 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 4.2 “Cautions on Storage”.

## 4.4 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 and 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.

## 4.5 Disposal

Confirm the notes described in the Signal Quality Analyzer Series Installation Guide and observe national and local regulations when disposing of the MP1800A.

Before disposal, dismantle or physically destroy any non-volatile memory media in the MP1800A to ensure that data in memory cannot be recovered by third parties.