ADVANTEST®
ADVANTEST CORPORATION

INSTRUCTION MANUAL

R4762

BASIC TERMINAL SIMULATOR

MANUAL NUMBER OED00 9101

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PREFACE

Thank you for choosing ADVANTEST basic terminal simulator R4762.

Please read this instruction manual carefully before use, and follow the directions for best results.

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1. GENERAL INFORMATION

1.1 General

Basic terminal simulator R4762 is the test equipment for a transfer system which uses INSDN basic interface (CCITT-recommended I. 430 BASIC USER-NETWORK INTERFACE-LAYER 1 SPECIFICATION) as a user-network interface. R4762 is connected to a four-wire bus to serve as a pseudo-terminal, allowing the start and stop sequences of layer 1, D-channel contention control, and transfer characteristics to be tested.

Figure 1-1 shows an example of using a series of R4762s.

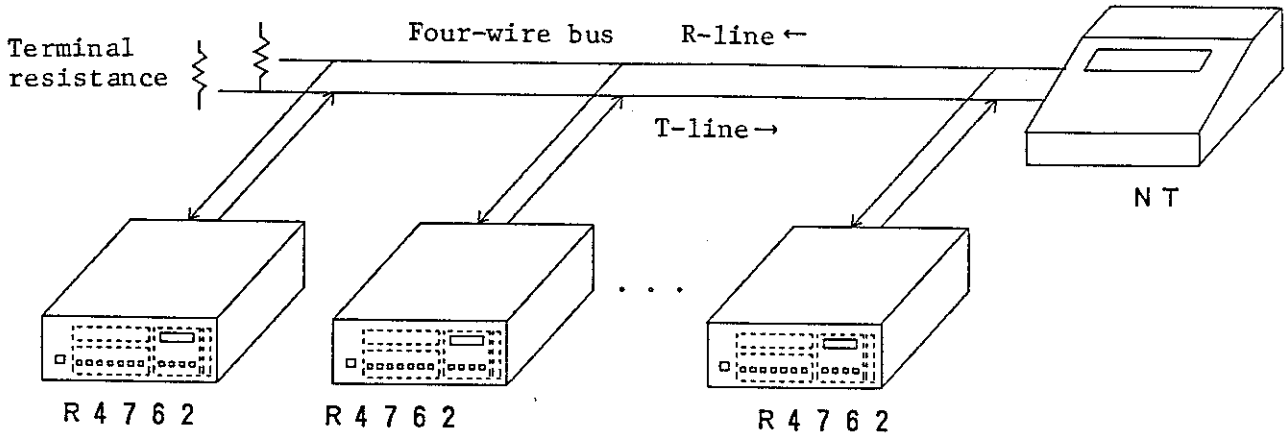

Figure 1-1 Example of R4762 Connection Format

1.2 Features

R4762 has the following functional features:

(1) Pseudo-terminal function

Allows call originating start by INFO1, call terminating answer to INFO2 and INFO4 to be done, and provides other basic functions of layer 1 as a pseudo-terminal.

(2) Real-time status display function

Permits the INFO attribute of R-line signal, power feed state, TE state, results of echo check, and the synchronous state of the multiframe to be displayed using LED. Note that this function allows the user to monitor the state of not only the phantom feed (by PS1) but also the auxiliary power supply (PS2) as an option in CCITT recommendation I. 430. With this function, the user can change TE states of this equipment.

(3) Receive data DEMUX output and send data MUX input functions

The DEMUX output function isolates channels B1, B2 and D, and bits FA, M, and S from the frame of INFO4 received from R-line to output them serially to external devices. The MUX function synthesizes channels B1, B2, and D, and bit Q serially input from external devices to put them on INFO3 output to T-line.

These functions allow testing of the bit error rate of each channel and the protocol for high-order layers.

(4) D-channel contention control test function

In accessing D-channel to be output to T-line, the contention control algorithm using the echo bit is used. R4762 provides the following functions to test the D-channel contention control function of the other TE connected to the four-wire bus line:

① D-channel send request simultaneous generation function

This equipment has both input and output for D-channel send request signal. This permits D-channel send requests of two or more T4762s or other TEs to be generated simultaneously. To ensure the simultaneity, each D-channel send request can be generated in synchronization with logic 0 of D-channel data.

② D-channel data program function

This function allows the first 16 bits of D-channel data to be output for programming in 0-and-1 pattern. With this programming, the access priority when D-channel send requests occur simultaneously from this equipment and other TE can be specified. The first 16 bits are followed by the pseudo-random pattern. This pseudo-random pattern includes no series of eight or more 1 which is set continuously so as not to be recognized as an empty channel when sending.

③ D-channel data length specification function

This function allows the length of data to be sent to D-channel to be specified within the range from 1 to 255 bits or to be endless. This equipment stops sending data to D-channel automatically just after it sends the data of the length specified here to the channel.

Accordingly, the period when D-channel is vacant can be specified. Note that the user can stop sending data by key operation on the panel if the data length is specified to be endless.

(5) Channels B and D loop-back function

Returns the channels B1, B2, and D received from R-line to T-line for the bit error rate test by loop-back.

(6) Pseudo-random pattern send function

Not only channel D but also channels B1, B2, and Q can send the pseudo-random pattern. With this function, the user can easily check the signal waveform of T-line with an oscilloscope and test the sensitivity of the NT receiver.

(7) Phase delay variation and jitter addition functions

The phase delay variation function can change the phase delay of the rise frame to be sent to T-line within the range from -20% to +935% of the bit cycle to the reference value (delayed by two bits from the down frame to R-line) in 1% steps. This allows the simulation of transfer line delay. The jitter addition function can add jitter of 0 to 63% o-p amplitude and 1 Hz to 30 kHz frequency to the signal transferred to T-line.

These functions allows the synchronous characteristics of the NT receiver to be tested.

(8) Send pulse amplitude variation function

This function can change the signal to be sent to T-line within the range from -8 dB to +2 dB to the reference value (750 mVo-p at the load of 50 ohm) in 0.5 dB steps. This allows the sensitivity of the NT receiver to be tested.

(9) GPIB function

Every item set from the operation panel of this equipment can be set remotely via the general purpose interface bus (GPIB). The TE state and D-channel send request state can be reported with the status byte to the serial poll. This function allows a variety of automatic tests to be done using GPIB control.

1.3 Check of Accessories

Unpack the R4762 and check the product for any damage due to transport.

Then check the inventory of accessories listed in Table 1-1. If a scratch, damage or shortage of accessories is found, contact the sales division or agency nearest your place of business.

Request to User: When order add-on Accessories and the like, be good enough to stipulate the model (or stock No.) concerned.

Table 1-1 Standard Accessories

Product name	Model	Stock No.	Q'ty	Remarks
Power cable	MP-43B	DCB-DD2428X01	1	
Fuse	EAWK25A	DFT-AA2R5A	2	2.5A
Instrution Manual	-	ER4762	1	English

1.4 Performance

1.4.1 Governing Specification

This equipment conforms to CCITT (International Consultative Committee for Telephone and Telegraph) recommendation I.430 (1986) unless otherwise specified.

1.4.2 Functional Specifications

(1) Feed supervisory function

- Supervises the feed state of PS1 and its polarity, and indicates them using lamps (NORM/RVS/OFF).
- Supervises the feed state of PS2 and indicates it using lamps (ON/OFF).

(2) R-line status supervisory function

- Supervises the INFO attribute of the R-line signal and indicates it using lamps (INFO0/2/4).
- Definition of INFO: INFO0 starts when no-signal state lasts for the time (1250 μs) equivalent to five frames after sampling R-line signals at 192 kHz. INFO0 ends when the mark signal ("0") of one or more bit is detected.
- Supervises the FA and M bits of R-line and indicates the synchronization of the multiframe using a lamp.

(3) TE status supervisory function

- Supervises the status as a pseudo-terminal and indicates it using lamps (F1 to F8).
- May set the feed detection mode (F1-to-F2 transition condition) as a pseudo-terminal.

PS1: NORM (normal polarity)
PS1: RVS (reverse polarity)
PS1: ON (normal or reverse polarity)
PS2: ON
AC power supply of this equipment
: ON

(4) Call originating start/call terminating start/stop function

- Allows call originating start using INFO0 to be done using the key on the front panel.
- Allows answering of the call terminating start signal sent from NT via R-line.
- Allows sending signals to T-line to be stopped using the key on the front panel.

(5) Receive data output function

- Isolates channels B1, B2, and D from INFO4 received from R-line, or bits E, FA, M, and S to output them serially to external devices.
- The following shows the rate of data to be output:

  B1, B2 : 64 kbit/s
  D, E : 16 kbit/s or 64 k universal
  FA, M, S: 4 kbit/s

- The following shows the rate of the clock to be output together with data:

  64 kHz
  16 kHz
  4 kHz or 8 kHz
  800 Hz
  200 Hz

- Every output is TTL (transistor-transistor logic) level and uses a BNC jack as its connector. When using this output, terminate it with 75-ohm resistance.

(6) Data send function

- Sends one of channels B1, B2, D and Q of INFO3 arbitrarily in the start state (F7).
- The following types of data to be output are available channel by channel:

  B1, B2: ① Pseudo-random sequence
  ② Loop-back of channels B1 and B2 of INFO4 received from line R
  ③ Data serially input from external devices
  ④ OFF (all "1")

D : ① Arbitrary 16 bit pattern + pseudo-random sequence data length can be changed.
② Loop-back of D-channel of INFO4 received from R-line,
③ Data serially input from external devices
④ OFF (all "1")

Q : ① Arbitrary four-bit pattern (Q1, Q2, Q3, Q4)
② Pseudo-random sequence
③ Data serially input from external devices
④ OFF (Loop-back of FA bit received from R-line)

- The loop-back phase of channels B1, B2, and D appears one and a half frames later.
- The rate of channel data of B1, B2, and D input from the external is the same as receive data output.
- The input level is TTl and a BNC jack is used as the connector.

(7) D-channel contention control function

- This function is set to ON (valid) or OFF (invalid).
- When the function is set to ON, the empty state of D-channel is supervised.
- While data is being sent to D-channel, bit E is supervised and its state is indicated with a lamp (SAME/DIFF).
- If an echo is not correctly received when the function is set to ON, sending data to D-channel is stopped.
- When the function is set to OFF, data is sent to D-channel without respect to contention for the channel.
- The priority class can be set to 1 or 2.
- A R4762 unit specified as a master unit can generate a send request together with an other two or more R4762s. In addition, the send request can be generated by the external signal and signals output to external devices when the send request occurs.

(8) Phase delay variation function

Varies the phase of the T-line frame to which data is sent from the reference value (two-clock delay) to the R-line frame from which data is received.

Phase delay range: -20% to +935%
Phase step : 1%

(9) Jitter addition function

Adds jitter to the signal to be sent to T-line.

Jitter amplitude range: 0 to 63% o-p
Amplitude step : 1% o-p
Waveform : Approximate sine wave
Jitter frequency range: 1 Hz to 30 kHz
Frequency step : 1, 3, and 10 steps

Note 1: The relation between "the set value of phase delay" and "the set value of jitter amplitude" has the following restrictions:

- [Set value of phase delay] - [Set value of jitter amplitude] $\geqq$ -20%
- [Set value of phase delay] + [Set value of jitter amplitude] $\leqq$ +935%

Note 2: The approximate sine wave is one whose waveform is equalized in the displacement of a sine wave with 1% steps by the time unit which one cycle of jitter is divided by, i.e. 128. (See Figure 1-2.)

Example of approximate sine wave with jitter amplitude of 4% o-p

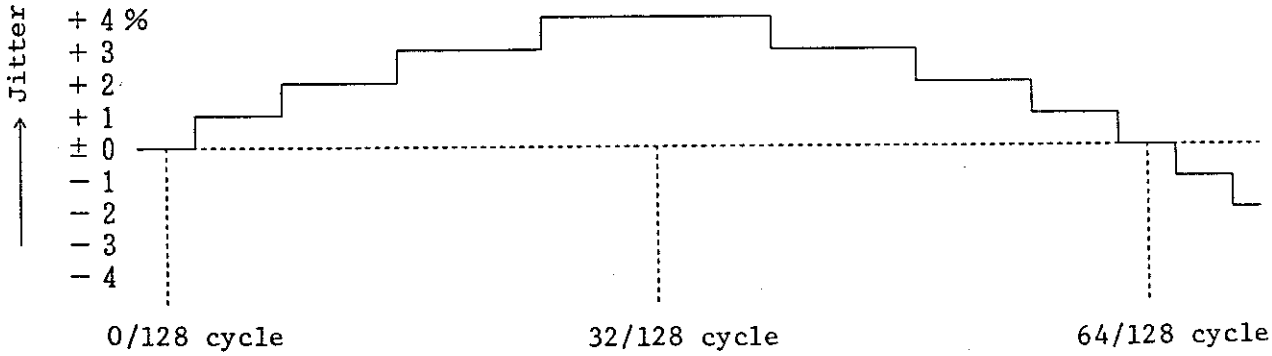

Figure 1-2 Approximate Sine Wave (1 cycle = 1/jitter frequency)

(10) Send pulse amplitude variation function

Varies the amplitude of the signal sent to T-line from the reference value (750 mVo-p).

Pulse amplitude range: -8 dB to +2 dB
Amplitude step : 0.5 dB

(11) GPIB functions

- Listener function

  Allows the same items available by key operation from the front panel to be set and operated using the commands from GPIB.

- Talker function

  Reports TE states and the state of a D-channel send request to the controller using the status to serial poll.

1.5 General Specifications

(1) Connector for four-wire bus line

The 8-pin modular jack (ISO/DS8877) and the binding post (with four pins) are used in parallel. Note that optional power supply PS2 is connected to the modular jack only.

(2) Operating environment restriction

Ambient temperature	:	0°C to +40°C
Relative humidity	:	85% or less

(3) Power supply

Power-supply voltage:		90 to 132 VAC (standard) 198 to 250 VAC (option)
Frequency	:	48 to 66 Hz
Power consumption	:	150 VA or less

(4) Dimensions

Approx. 420 (width) x 88 (height) x 450 (depth) mm

(5) Weight

9 kg or less

MEMO

2. OPERATION GUIDANCE

2.1 Introduction

This chapter describes has to operate the keys on the panels using panel sketches and state indication by LEDs.

2.2 Describing the Panels

This section describes each function and use of keys and connectors mounted on the front and rear panels. Figures 2-1 and 2-2 show the front panel and the rear panel of this equipment respectively.

2.2.1 Front Panel

See Figure 2-1.

(1) Power switch (POWER)

This switch turns the power supply of this equipment on and off.

(2) POWER DETECT MODE button

This button selects the feed mode as a pseudo-terminal. A selected mode is indicated by the corresponding LED.

PS1 NORM: The state of each terminal unit changes with normal polarity feed by PS1.

PS1 RVS : The state of each terminal unit changes with reverse polarity feed by PS1.

PS2 ON : The state of each terminal unit changes with feed by the auxiliary power supply (PS2).

OFF : The state of each terminal unit changes with the power supply of this equipment turned on.

(3) Phantom feed indicator

This indicator supervises and shows the power feed of PS1 and its polarity by LEDs. It also supervises and shows the power feed of PS2 by LED.

(4) R-line INFO attribute indicator (R-LINE INFO)

0: INFO0
2: INFO2
4: INFO4

(5) Terminal unit state indicator

This indicator shows the state of each unit as a pseudo-terminal (F1 to F8).

(6) Transmit enable key (TRANSMIT ENABLE)

This key turns on (enables) or off (disables) the transmit function. When data transmission is possible, the LED built in the key is on.

(7) Call origination request key (ACTIVATE REQUEST)

This key starts call origination by INFO1.

(8) Transmit data select key (TRANSMIT DATA)

This key selects data of channel B1, B2, D or Q to be sent to T-line as follows:

B1 RNDM: Sends the pseudo-random pattern to T-line channel B1.
B1 LOOP: Loops channel B1 of INFO4 received from R-line to channel B1 of T-line.
B1 EXT : Sends B1-channel data input from the outside (BNC connector of the rear panel) to channel B1 of T-line.
B1 OFF : Sends a series of 1 to channel B1 of T-line.
B2 RNDM: Sends the pseudo-random pattern to T-line channel B2.
B2 LOOP: Loops channel B2 of INFO4 received from R-line to channel B2 of T-line.
B2 EXT : Sends B2-channel data input from the external (BNC connector of the rear panel) to channel B2 of T-line.
B2 OFF : Sends a series of 1s to channel B2 of T-line.
D PRGM : Sends data set by D-CHAN DATA for parameter setting to channel D of T-line.
D LOOP : Loops D-channel data of INFO4 received from R-line to channel D of T-line.
D EXT : Sends D-channel data input from the external (BNC connector of the rear panel) to the channel D of T-line.
D OFF : Sends a series of 1s to channel D of T-line.
Q PRGM : Sends data set by Q-CHAN DATA for parameter setting to channel Q of T-line.
Q RND : Sends the pseudo-random pattern to channel Q of T-line.
Q EXT : Sends Q-channel data input from the external (BNC connector of the rear panel) to channel Q of T-line.

(9) Echo check result indicator (ECHO CHECK)

On D-channel transmission, LED SAME goes on when the results of echo check agree and LED DIFF goes on when they disagree.

(10) Multiframe synchronous state indicator (MULTIFRAME)

LED SYNC goes on when synchronization of the multiframe on the R-line side is established.

(11) Contention control key (CONTENTION CONTROL)

This key turns the D-channel contention control function on (valid) or off (invalid). The LED built in the key goes on when the function is turned on.

(12) Data request key (DATA REQUEST)

This key is turned on to request D-channel data transmission. The LED built in the key goes on when the key is turned on.

(13) Priority class select key (PRIORITY CLASS)

This key selects the priority class 1 or 2 in contention control of D-channel. The LED of a selected class goes on.

(14) Parameter setting

PHASE DEVN : Sets the value of the phase of the T-line frame to which data is sent to be changed from the reference value (two-clock delay), in percentages, to the R-line frame from which data is received.

Phase delay range: -20% to +935%
Phase step : 1%

JITTER AMPTD: Sets the amplitude of the jitter to be added to the signal sent from T-line.

Jitter amplitude range: 0 to 63% o-p
Amplitude step : 1% o-p
Waveform : Approximate sine wave

Note: The relation between the set value of phase delay (PHASE DEVN) and the set value of jitter amplitude (JITTER AMPLITUDE) has the following restrictions:

- [Set value of phase delay] - [Set value of jitter amplitude] -20%
- [Set value of phase delay] + [Set value of jitter amplitude] +935%

JITTER FREQ : Sets the frequency of the jitter to be added to the signals sent from T-line.

Phase delay range: 1 Hz to 30 kHz
Frequency step : 1, 3, and 10 steps

PULSE AMPTD : Sets the amplitude of the signal to be sent to T-line.

Pulse amplitude range: -8 dB to +2 dB
Amplitude step : 0.5 dB

D-CHAN DATA : Sets data to be sent to T-line channel D when channel D is set to PRG using the transmit data select key in hexadecimal.

DATA LENGTH : Sets the length of data to be sent to D-channel. The value can be set within the range from 1 to 255 bits or endless.

Q-CHAN DATA : Sets data to be sent to T-line channel Q when channel Q is set to PRG using the transmit data select key in binary.
Q1, Q2, Q3, and Q4 can be set in descending order.

TIMER 3 : Sets the value of TIMER 3.
The value can be set within the range from 0.01 to 99.99 sec. in the unit of 0.01 sec. (Note that the value of 0.00x sec. may be set; however, the accuracy cannot be assured.)

ADDRESS : Sets the GPIB address.

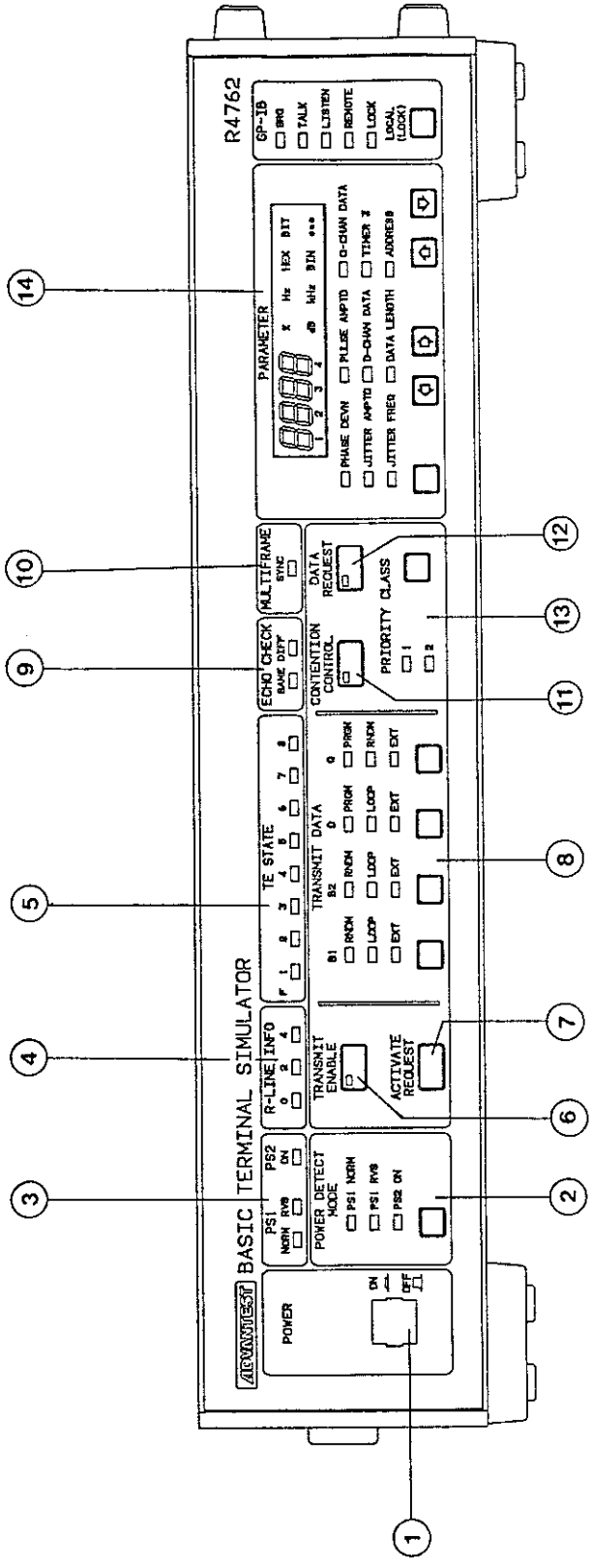

Figure 2-1 Front Panel

2.2.2 Describing the Rear Panel

(1) Line terminals

These terminals are connected to the four-wire bus interface in parallel with line connector 2 below.

R+: + terminal of R-line
R-: - terminal of R-line
T+: + terminal of T-line
T-: - terminal of T-line

(2) Line connector

This connector is the modular jack to connect the four-wire bus interface.

(3) GPIB connector

This connector connects GPIB.

(4) Setting switch

① T-line D-channel data request (DREQ)

ENB: Enables input of DATA REQ INPUT.
DIS: Disables input of DATA REQ INPUT.

② T-line D-channel data request synchronization (DREQ)

SYNC : Recognizes that a data request occurs when the logic zero of R-line D-channel is detected after the data request is set using the front panel key or external input.

ASYNC: Recognizes that a data request occurs the moment the data request is set using the front panel key or external input.

③ RECEIVE OUTPUT B1, FA selection

B1: Outputs data of R-line B1-channel to the output B1/FA (BNC connector) of RECEIVE OUTPUT.
FA: Outputs data of R-line FA-bit to the output B1/FA (BNC connector) of RECEIVE OUTPUT.

④ RECEIVE OUTPUT B2/M and TRANSMIT INPUT B2/Q selection

B2 : Outputs data of R-line B2-channel to output B2/M (BNC connector) of RECEIVE OUTPUT.

Sends the signal input to input B2/Q (BNC connector) of TRANSMIT INPUT to T-line B2-channel when B2-channel EXT is selected by the TRANSMIT DATA key on the front panel.

M, Q: Outputs data of R-line FA-bit to output B2/M of RECEIVE OUTPUT.

Sends the signal input to input B2/Q (BNC connector) of TRANSMIT INPUT to the T-line Q-bit when Q-bit EXT is selected by the TRANSMIT DATA key on the front panel.

⑤ RECEIVE OUTPUT E/S selection

E: Outputs data of bit E to output E/S (BNC connector) of RECEIVE OUTPUT.
S: Outputs data of bit S to output E/S (BNC connector) of RECEIVE OUTPUT.

⑥ D-channel and B-bit output format switching

16K: Outputs R-line D-channel and E-bit to RECEIVE OUTPUT in synchronization with 16K signal of CLOCK OUTPUT.
64K: Outputs R-line D-channel and E-bit to RECEIVE OUTPUT in synchronization with 64K signal of CLOCK OUTPUT.

⑦ CLOCK OUTPUT 4K/8K selection

4K: Outputs the clock of 4K bit/sec to output 4K/8K (BNC connector) of CLOCK OUTPUT.
8K: Outputs the clock of 8K bit/sec to output 4K/8K (BNC connector) of CLOCK OUTPUT.

(5) T-line D-channel send request connector (DATA REQ)

OUTPUT: Outputs a pulse when the data request key on the front panel is pressed.
INPUT : Allows a D-channel send request to be placed when this connector INPUT is connected to connector OUTPUT of another R4762. Note that this input is available only when setting switch 1DREQ on the rear panel is set to ENB.

(6) Receive data output connectors (RECEIVE OUTPUT)

These connectors isolate B1, FA, B2, D, or S-channel of INFO4 received from R-line to output serially to external devices.

B1/FA: Outputs data of B1-channel or FA-bit (selected using the rear panel switch).

B2/M : Outputs data of B2-channel or M-bit (selected using the rear panel switch).

D : Outputs D-channel data.

E/S : Outputs data of E-channel or S-bit.

Note that the output timing of D-channel and B-bit is changed using the rear panel switch.

(7) Transmit data input connectors (TRANSMIT INPUT)

These connectors serially input data of channels B1, B2, Q, or D to be output to T-line.

B1 : Inputs B1-channel data.
B2/M: Inputs B2 or Q-channel data (selected using the rear panel switch).
D : Inputs D-channel data.

(8) Clock output connectors (CLOCK OUTPUT)

These connectors output data from R-line serially to external devices and they also output the clock signal synchronous with each piece of data (4K bps, 8K bps, 200 bps) at the same time for bit timing.

64K : 64 kHz clock (B1/B2-channel bit timing and D/E channel bit timing in the case of DE64K)

16K : 16 kHz clock (D-channel bit timing in the case of DE16K)

4K/8K: 4 kHz clock or 8 kHz clock

(4K delimits frames and 8K delimits the octet of channel B1 or B2; they are selected using the rear panel switch.)

800 : 800 Hz clock (Q-channel bit timing)

200 : 200 Hz clock (Multiframe timing)

(9) Fuse (FUSE)

This fuse protects the AC power supply. A time lag fuse is used.

(10) Ground terminal

(11) AC power-supply connector (∼ LINE)

This connector connects the power-supply cable.

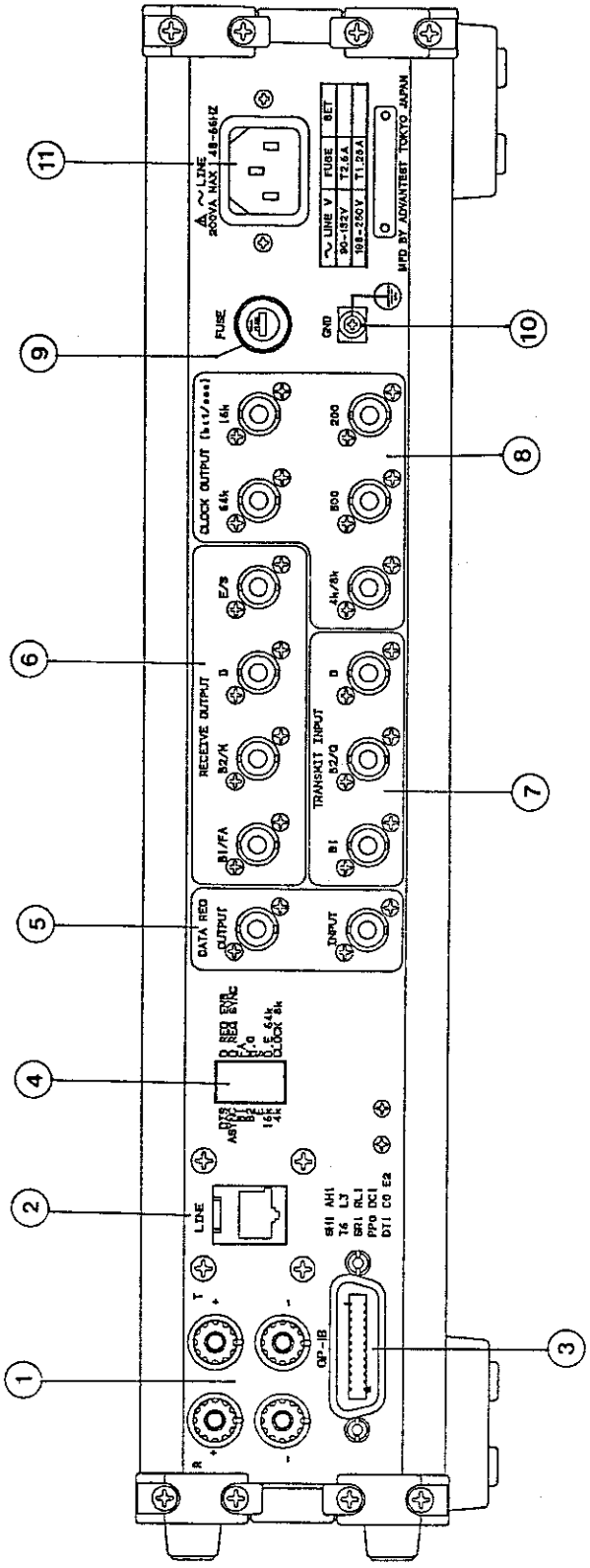

Figure 2-2 Rear Panel

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3. GPIB

This basic terminal simulator R4762 helps an automatic system to be configured easily because GPIB (general purpose interface bus) allows selecting functions and setting parameters to be controlled externally.

3.1 GPIB Specifications

3.1.1 General Specifications

Electrical specification: Conforms to IEEE specification 488-1978 and IEC specification 625-1

Mechanical specification: IEEE specification 488-1978
Operating code : ASCII code
Logical level : Logic 0 "High" status +2.4 V or more
Logic 1 "Low" status +0.4 V or less
Interface function : (See Table 3-1.)

Table 3-1 R4762 Interface Functions

Code	Function
SH1	Source handshake function
AH1	Acceptor handshake function
T6	Basic talker function, Unaddressed to talk if addressed to listen, Serial poll function
L3	Basic listener function, Unaddressed to listen if addressed to talk, Listen only mode function
SR1	Service request function
RL1	Remote/local select function
PP0	No parallel poll function
DC1	Device clear function ("DSC" and "DCL" commands available.)
DT1	Device trigger function ("GET" command available)
C0	No controller function
E2	Try state output

16 bus lines are arranged as in Figure 3-1 below.

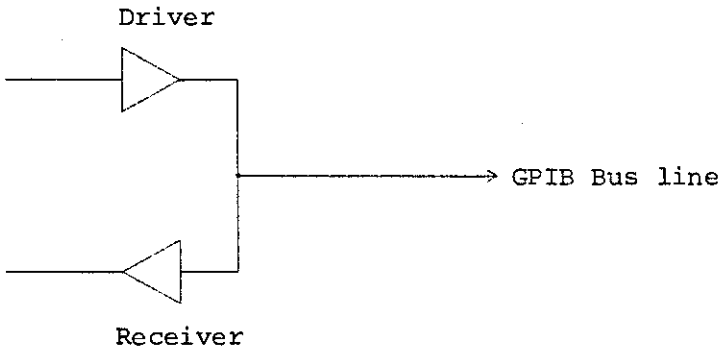


Figure 3-1 GPIB Bus Line

Driver specification	:	Try state system "Low" state at +0.4 V or less, 48 mA "High" state at +2.4 V or more, -5.2 mA
Receiver specification:		"Low" state at +0.6 V or less "High" state at 2.0 V or more
Remote programming	:	Functions and parameters can be selected and set.
Connector	:	24-pin GP-IB connector (See Figure 3-2) 57-20240-D35A (Equivalent to Amphenole product)
Addressing	:	Arbitrary addressing to talk and listen is possible in 31 types by panel key operation.

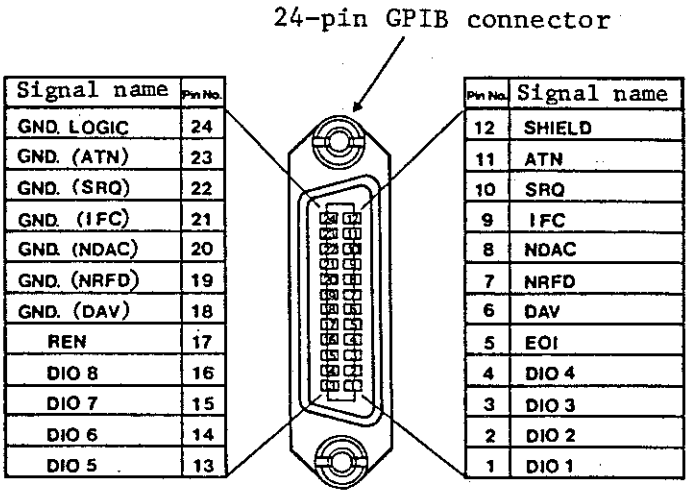


Figure 3-2 GPIB Connector Pin Assignment

3.1.2 Connecting the Components

The GPIB system must be configured with great care given to the following points because it consists of various devices:

(1) Check the conditions (preparations) and operation of each device according to the operation manuals of R4762, controller, peripheral devices and other components before connecting them to one another.

(2) Make the connecting cables to measuring instruments and the controller as short as possible. Do not use a cable exceeding 20 meters. Note that ADVANTEST can provide the user with the following cables as standard bus cables:

Table 3-2 Standard Bus Cables

Length	Name
0.5 m	408JE-1P5
1 m	408JE-101
2 m	408JE-102
4 m	408JE-104

(3) The bus cable connector is a piggyback type which has two male and female connectors so that this connector can be used with another one of the same type. However, do not use three or more connectors together at one time.

(4) Be sure to turn components on after checking the power-supply and grounding conditions of each component, and the setting conditions as required. Note that a component not powered on may abstruct normal system operation.

3.1.3 Addressing

GPIB addressing to talk and listen can be done by operating the keys on the front panel. Any of 31 types of address can be set with a decimal code shown in Table 3-3 below.

Table 3-3 Address Code

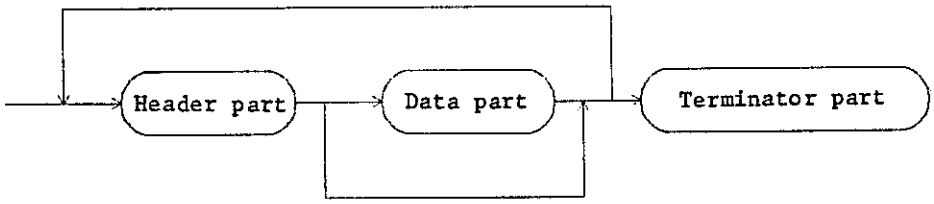
Decimal	ASCII code		Decimal	ASCII code		Decimal	ASCII code	
	Listen	Talk		Listen	Talk		Listen	Talk
0	SP	@	11	+	K	22	6	V
1	!	A	12	,	L	23	7	W
2	"	B	13	-	M	24	8	X
3	#	C	14	.	N	25	9	Y
4	$	D	15	/	O	26	:	Z
5	%	E	16	0	P	27	;	[
6	&	F	17	1	Q	28	<	\
7	'	G	18	2	R	29	=	]
8	(	H	19	3	S	30	>	∿
9	)	I	20	4	T			
10	*	J	21	5	U			

3.2 Remote Programming

R4762 allows functions and parameters to be selected and set externally via the controller. Table 3-3 lists program codes.

This program module checks data input in the specified format and converts it to the internal status flag or internal code according to its header code.

The module processes the input format when it recognizes the data delimiter. The format consists of the header part (code part), the data part, and the terminator part. Note that some headers do not include data.



3.3 GPIB Command List

	Header part	Data part	Setting items
Setting POWER DETECT MODE	PM	*0 1 2 3 4	OFF PS1 NOR PS1 REV PS1 ON PS2 ON
Setting TRANSMIT ENABLE	TE	*0 1	OFF (DISABLE) ON (ENABLE)
Setting TRANSMIT DATA B1	TDB1	*0 1 2 3	OFF RNDM LOOP EXT
Setting TRANSMIT DATA B2	TDB2	*0 1 2 3	OFF RNDM LOOP EXT
Setting TRANSMIT DATA D	TDD	*0 1 2 3	OFF PRGM LOOP EXT
Setting TRANSMIT DATA Q	TDQ	*0 1 2 3	OFF PRGM RNDM EXT
Setting CONTENTION CONTROL	CC	*0 1	OFF ON
Setting DATA REQUEST	DR	*0 1	
Setting PRIORITY CLASS	PC	*0 1	1 2
Setting PHASE DEV	PD	-20 to 935	Initial value: 0
Setting JITTER AMP	JA	0 to 63	
Setting JITTER FREQ	JF	1, 3, 10, 30, 100, 300, 1 K, 3 K, 10K, 30K	Initial value: 100
Setting PULSE AMP	PA	-8.0 to 2.0	0.5 step Initial value: 0

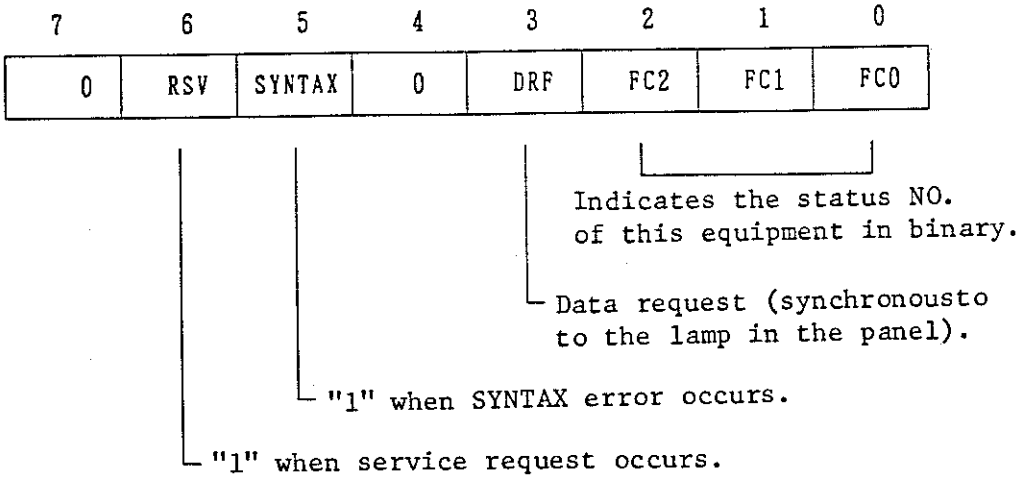
Note: The * symbol indicates an initial set value.

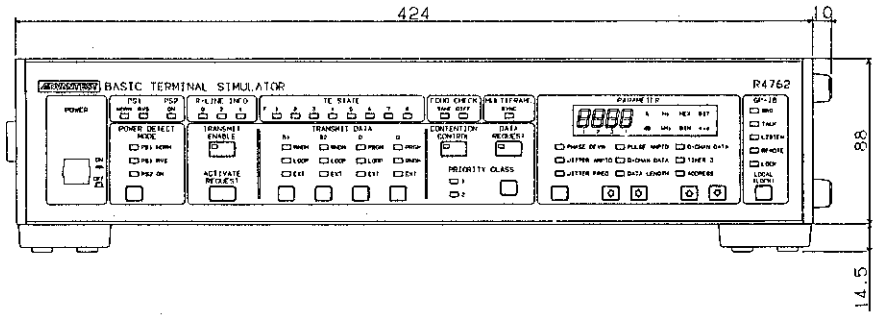
	Header part	Data part	Setting items
Setting D-ch DATA	DD	0000 to FFFF	Hexadecimal Initial value: 0000
Setting DATA LENGTH	LE	0 to 255	Initial value: 16
Setting Q-ch DATA	QD	0000 to 1111	Binary Initial value: 0000
Setting TIMER 3	T3	0.00 to 99.99	0.1 step Initial value: 1.00
Setting SRQ origination (to be valid or invalid)	S	0 *1	Valid Invalid
SRQ origination (on reception of GET or code "E")	S	*2 3	Same as "AR" Same as "DR1"
Setting CLEAR	C		Sets S1, TE0, TDB10, TDB20, TDD0, TDQ0, DR0, and S2.
Setting INITIALIZE	Z		Sets "C" and initializes all values.
Setting TRIGGER	E		Same as "AR" with "S2" Same as "DR1" with "S3"

Note: The * symbol indicates an initial set value.

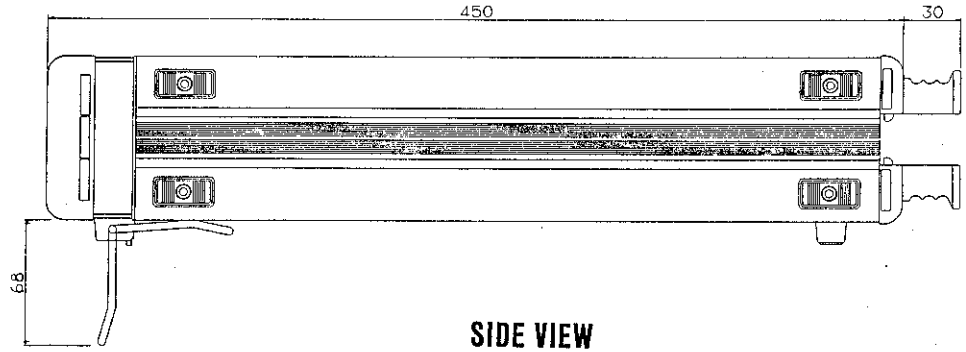
3.4 Service Request (SRQ)

This equipment in the "S0" mode originates a service request (SRQ) to the controller when a SYNTAX error occurs. When the equipment originates the service request, it transmits the status byte by executing serial polling from the controller.

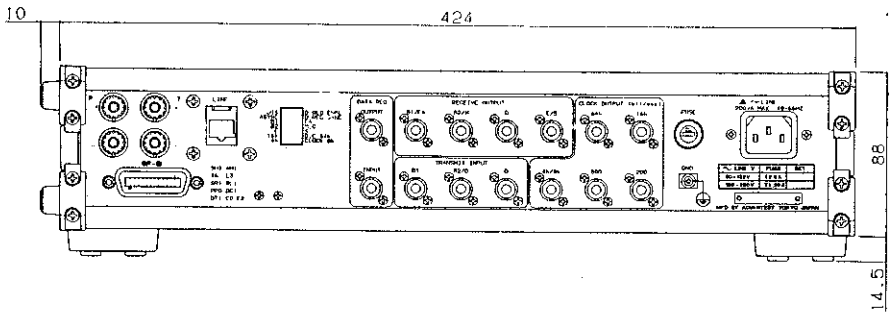




FRONT VIEW

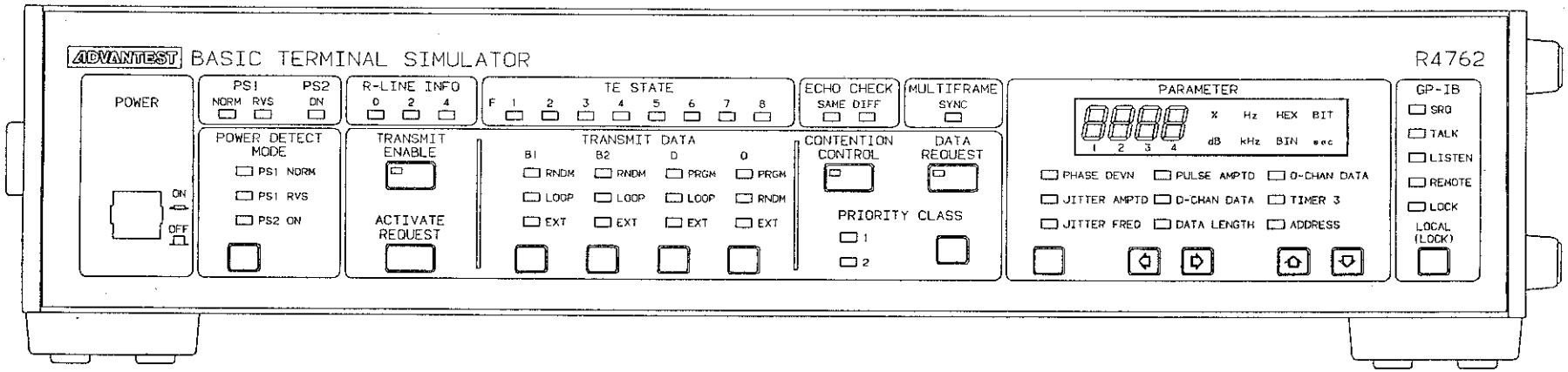


SIDE VIEW



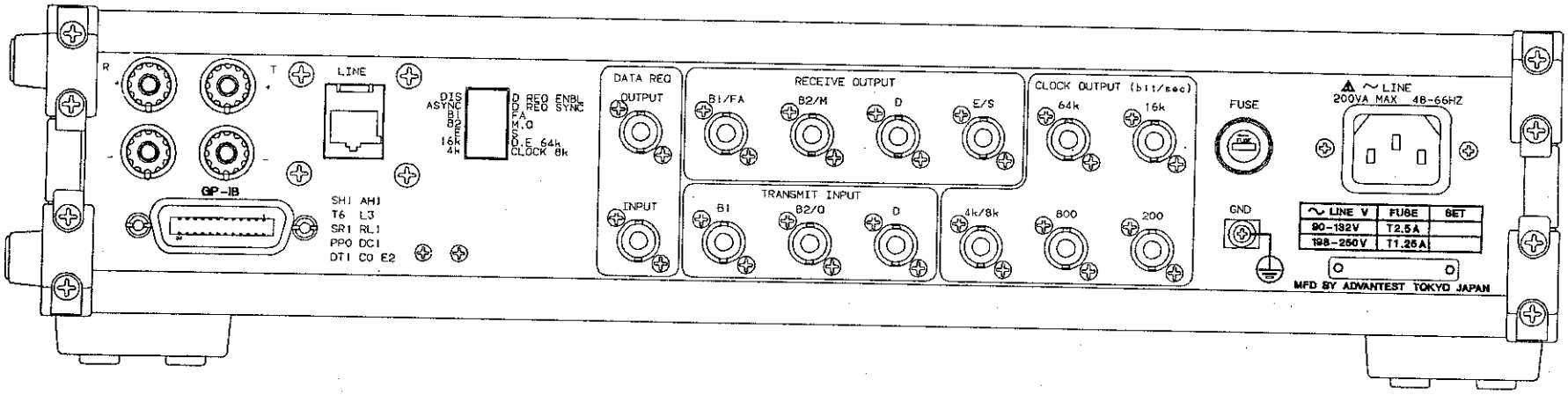
REAR VIEW

R4762
EXTERNAL VIEW



R4762 FRONT VIEW

4762EXT2-706-A



R4762 REAR VIEW

4762EXT3-706-A

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SALES & SUPPORT OFFICES

Advantest Korea Co., Ltd.
22BF, Kyobo KangNam Tower,
1303-22, Seocho-Dong, Seocho-Ku, Seoul #137-070, Korea
Phone: +82-2-532-7071
Fax: +82-2-532-7132

Advantest (Suzhou) Co., Ltd.
Shanghai Branch Office:
Bldg. 6D, NO.1188 Gumei Road, Shanghai, China 201102 P.R.C.
Phone: +86-21-6485-2725
Fax: +86-21-6485-2726

Shanghai Branch Office:
406/F, Ying Building, Quantum Plaza, No. 23 Zhi Chun Road,
Hai Dian District, Beijing,
China 100083
Phone: +86-10-8235-3377
Fax: +86-10-8235-6717

Advantest (Singapore) Pte. Ltd.
438A Alexandra Road, #08-03/06
Alexandra Technopark Singapore 119967
Phone: +65-6274-3100
Fax: +65-6274-4055

Advantest America, Inc.
3201 Scott Boulevard, Suite, Santa Clara, CA 95054, U.S.A
Phone: +1-408-988-7700
Fax: +1-408-987-0691

ROHDE & SCHWARZ Europe GmbH
Mühldorfstraße 15 D-81671 München, Germany
(P.O.B. 80 14 60 D-81614 München, Germany)
Phone: +49-89-4129-13711
Fax: +49-89-4129-13723

ADVANTEST®

http://www.advantest.co.jp

ADVANTEST CORPORATION
Shin-Marunouchi Center Building, 1-6-2 Marunouchi, Chiyoda-ku, Tokyo 100-0005, Japan
Phone: +81-3-3214-7500