



MP1776A

Error Detector

100 MHz to 12.5 GHz



For R&D and Manufacturing of 40 Gbit/s Transmission Equipment, Modules, and Devices

- Max. 4-channels in one box (possibility to decrease channel numbers)
- Independent measurement of 4-channels
- Supports measurement for up to 50 Gbit/s system (total bit rate)
- PRBS patterns from $2^7 - 1$ to $2^{31} - 1$
- Max. 32 Mbit programmable pattern at 4-channels combined mode (corresponding six frames of STM-256/STS-768)
- Burst data BER measurement for optical circulating loop test
- Good operability by GUI
- Display 4-channels measurement results on screen

Specifications

MP1776A (main frame), MU177601B (12.5 Gb/s Error Detector)

Operating frequency	100 MHz to 12.5 GHz
Measurement pattern	PRBS pattern: $2^n - 1$ (n: 7, 9, 11, 15, 20, 23, 31) Zero substitution pattern: 2^n (n: 7, 9, 11, 15), consecutive zero-pattern can be inserted up to pattern length - 1 Programmable data Independent: 2 to 8,388,608 bits 2-channels combined: 4 to 16,777,216 bits 4-channels combined: 8 to 33,554,432 bits Logic inversion: Positive/negative switching possible
Measurement mode	Independent* ¹ , 2-channels combined* ² , 4-channels combined* ³
Synchronization method	Normal, frame
Error detection mode	Insertion, omission, total
Measurement items	Error ratio: 0.0000×10^{-16} to 1.0000×10^0 Error count: 0 to 9,999,999, 1.0000×10^7 to 9.9999×10^{16} Clock frequency: 0.1 to 12.5 GHz (independent), 0.2 to 25 GHz (2-channels combined), 0.4 to 50 GHz (4-channels combined) *Resolution: 1 kHz, accuracy: 10 ppm $\pm$ 1 kHz
Sync threshold value	Internal, 10^{-n} (n: 2, 3, 4, 5, 6, 7, 8)
Auto search function	Supported
Data input	Input waveform: NRZ Input amplitude: 0.5 to 2.0 Vp-p Threshold voltage: -3.000 to +1.750 V (1 mV step) Termination condition: GND/-2.0 V Input impedance: 50 Ω Connector: APC-3.5 Number of input: 1 (MU177601B 12.5 Gbit/s Error Detector Unit)
Clock input	Input level: 0.5 to 2.0 Vp-p Input waveform: Square wave only (<0.5 GHz, Duty: 50%), Sine or square wave ($\geq$ 0.5 GHz, duty: 50%) Clock delay: $\pm$ 500 ps (1 ps step) Polarity inversion: POS/NEG inversion selectable Input impedance: 50 Ω Connector: APC-3.5 Number of input: 1 (MU177601B 12.5 Gbit/s Error Detector Unit, up to 4 channel can be added.)
Resync input	Input level: 0/-1 V $\pm$ 0.1 V, Connector: SMA
System environment	Display: 10.4-inch, color LCD, touch screen, 640 x 480 dots, 256 colors (16 M colors in VGA when external display is connected.) Printer: Parallel port for external printer (D-sub 25-pin) Keyboard: 101-type (English), PS/2 (mini DIN 6-pin) Mouse: Serial, PS/2 (mini DIN 6pin) FDD: 3.5-inch, 2 models (740 KB, 1.44 MB) HDD C drive: $\geq$ 474 MB (Used for system: measurement data, pattern) D drive: $\geq$ 30 MB (Not accessible to users, interface: IDE)
Remote control	RS-232C (standard, D-sub 9-pin), GPIB (IEEE488.2)
Power	90 to 120 Vac/180 to 250 Vac, 47.5 to 63 Hz, $\leq$ 1000 VA
Operating temperature	+15° to +35 °C
Dimensions and mass	426 (W) x 266 (H) x 584 (D) mm, $\leq$ 50 kg (with 4 units of MU177601B)
EMC	EN61326: 1997/A1, 1998 (Class A) EN61000-3-2: 1995/A2, 1998 (Class A) EN61326: 1997/A1, 1998 (Annex A)
LVD	EN610101-1: 1993/A2, 1995 (Installation Category II, Pollution degree 2)

*1: Different measurement pattern and frequency can be set for each channel.

*2: Evaluates 1:2 DEMUX to check that the signal before demultiplexing is PRBS.

*3: Evaluates 1:4 DEMUX to check that the signal before demultiplexing is PRBS.

Ordering Information

Please specify model/order number, name, and quantity when ordering.

Model/order No.	Name
MP1776A	Main frame Error Detector
	Standard accessories
J0491	Power cord (with shield, 13 A): 1 pc
J0670A	Power cord (L-type, C7, for 200 V main), 2.5 m: 1 pc
F0074	Fuse, 10 A: 1 pc
Z0319A	PS/2 mouse: 1 pc
Z0320	Input pen: 1 pc
W1410AE	MP1776A operation manual: 1 copy
W1411AE	MP1776A remote operation manual: 1 copy
Z0306A	List strap: 1 pc
Z0352	MP1776A recovery tool: 2 pcs
Z0396A	Pen holder: 1 pc
MU177601B	Unit 12.5 Gb/s Error Detector Unit
	Standard accessories
J0696B	Coaxial cable (SMA-P · SMA-P), 0.5 m: 2 pcs
J0693A	Coaxial cable (HRM202B · 3D2W · HRM202B), 1 m: 1 pc
J0008	GPIO cable, 2 m: 1 pc
	Optional accessories
Z0321A	Keyboard (PS/2)
J0007	GPIO cable, 1 m
B0496	Portable test rack
B0374G	Carrying case
B0497A	Dummy unit (for SLOT 5)
B0497B	Dummy unit (for SLOT 1 to SLOT 4)
Z0416	Head cleaning disk (for 3.5-inch FDD)



Specifications are subject to change without notice.

ANRITSU CORPORATION MEASUREMENT SOLUTIONS

5-10-27, Minamiazabu, Minato-ku, Tokyo 106-8570, Japan
Phone: +81-3-3446-1111
Telex: J34372
Fax: +81-3-3442-0235

● U.S.A. ANRITSU COMPANY

North American Region Headquarters
1155 East Collins Blvd., Richardson, Tx 75081, U.S.A.
Toll Free: 1-800-ANRITSU (267-4878)
Phone: +1-972-644-1777
Fax: +1-972-671-1877

● Canada ANRITSU ELECTRONICS LTD.

700 Silver Seven Road, Suite 120, Kanata,
ON K2V 1C3, Canada
Phone: +1-613-591-2003
Fax: +1-613-591-1006

● Brasil ANRITSU ELETRÔNICA LTDA.

Praia de Botafogo 440, Sala 2401 CEP 22250-040,
Rio de Janeiro, RJ, Brasil
Phone: +55-21-5276922
Fax: +55-21-537-1456

● U.K. ANRITSU LTD.

200 Capability Green, Luton, Bedfordshire LU1 3LU, U.K.
Phone: +44-1582-433200
Fax: +44-1582-731303

● Germany ANRITSU GmbH

Grafenberger Allee 54-56, 40237 Düsseldorf, Germany
Phone: +49-211-96855-0
Fax: +49-211-96855-55

● France ANRITSU S.A.

9, Avenue du Québec Z.A. de Courtabœuf 91951 Les
Ulis Cedex, France
Phone: +33-1-60-92-15-50
Fax: +33-1-64-46-10-65

● Italy ANRITSU S.p.A.

Via Elio Vittorini, 129, 00144 Roma EUR, Italy
Phone: +39-06-509-9711
Fax: +39-06-502-24-25

● Sweden ANRITSU AB

Botvid Center, Fittja Backe 1-3 145 84 Stockholm,
Sweden
Phone: +46-853470700
Fax: +46-853470730

● Spain ANRITSU ELECTRÓNICA, S.A.

Europa Empresarial Edificio Londres, Planta 1, Oficina
6 C/ Playa de Liencres, 2 28230 Las Rozas. Madrid,
Spain
Phone: +34-91-6404460
Fax: +34-91-6404461

● Singapore ANRITSU PTE LTD.

10, Hoe Chiang Road #07-01/02, Keppel Towers,
Singapore 089315
Phone: +65-6282-2400
Fax: +65-6282-2533

● Hong Kong ANRITSU COMPANY LTD.

Suite 719, 7/F., Chinachem Golden Plaza, 77 Mody
Road, Tsimshatsui East, Kowloon, Hong Kong, China
Phone: +852-2301-4980
Fax: +852-2301-3545

● Korea ANRITSU CORPORATION

14F Hyun Juk Bldg. 832-41, Yeoksam-dong,
Kangnam-ku, Seoul, Korea
Phone: +82-2-553-6603
Fax: +82-2-553-6604~5

● Australia ANRITSU PTY LTD.

Unit 3/170 Forster Road Mt. Waverley, Victoria, 3149,
Australia
Phone: +61-3-9558-8177
Fax: +61-3-9558-8255

● Taiwan ANRITSU COMPANY INC.

6F, 96, Sec. 3, Chien Kou North Rd. Taipei, Taiwan
Phone: +886-2-2515-6050
Fax: +886-2-2509-5519