

ERROR DETECTOR
MP1776A
100 MHz to 12.5 GHz



Supports Measurement for up to 50 Gbit/s System (Installed with 4 Channels)



MP1776A is an error detector housing four error detectors that can measure error up to 12.5 Gbit/s. It has four-channels independent measurement mode, two-channels or four-channels combined measurement mode and be used for development, manufacturing and maintenance of transmission systems and modules from 12.5 Gbit/s to maximum 50 Gbit/s.

Features

- Max. 4-channels in one box
- Independent measurement of 4-channels
- 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 Gbit/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.)

Continued on next page

Resync input	Input level: 0/-1 V ±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: ≥474 MB (Used for system: measurement data, pattern) D drive: ≥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, ≤1000 VA
Operating temperature	+15° to +35 °C
Dimensions and mass	426 (W) x 266 (H) x 584 (D) mm, ≤50 kg (with 4 units of MU177601B)
EMC	EN61326: 1997/A2: 2001 (Class A) EN61000-3-2: 2000 (Class A) EN61326: 1997/A2: 2001 (Annex A)
LVD	EN61010-1: 2001 (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
J0008	GPIB cable, 2 m
W1410AE	MP1776A operation manual: 1 copy
W1411AE	MP1776A remote control operation manual: 1 copy
Z0306A	Wrist 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	SMA cable (AA-165-800), 0.8 m: 2 pcs
J0693A	Coaxial cable (HRM202B · 3D2W · HRM202B), 1 m: 1 pc
	Optional accessories
Z0321A	Keyboard (PS/2)
J0007	GPIB 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)
B0523D	F 6U Rack mount kit