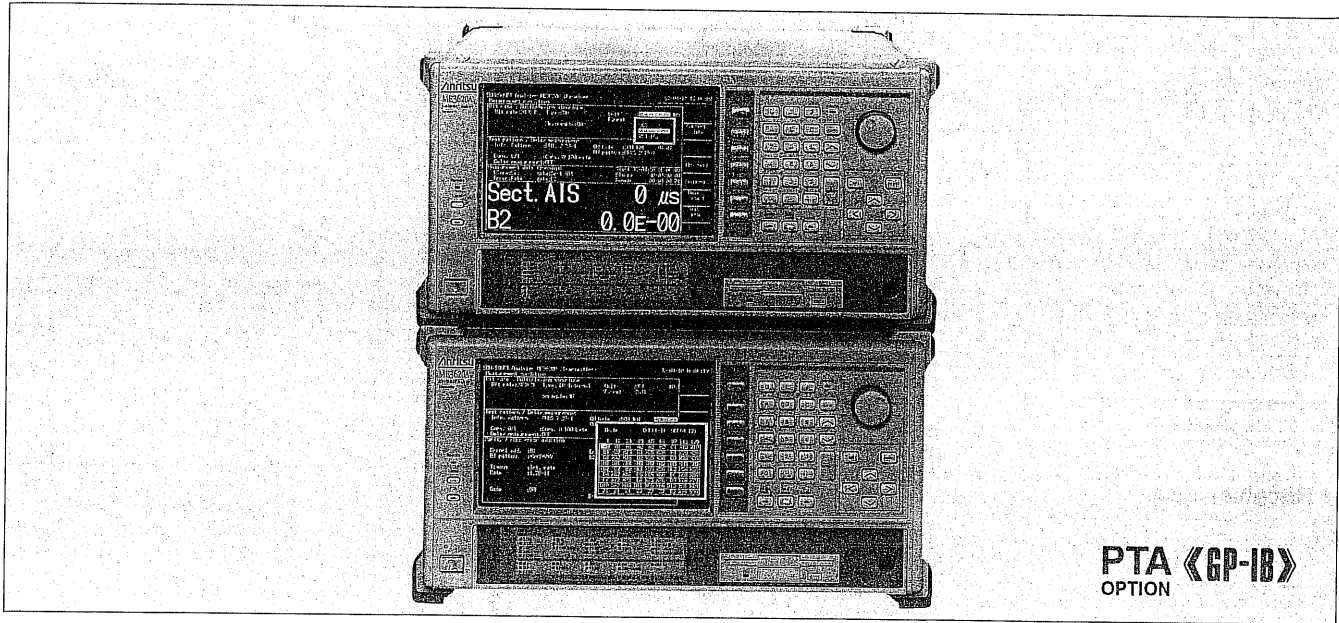


SDH/SONET Analyzer ME3520A/3620A

The Anritsu ME3620A is an obsolete product from Anritsu but may still be ordered reconditioned from AccuSource Electronics. <https://accusrc.com>



PTA **GP-1B**
OPTION

The ME3520A/ME3620A SDH/SONET Analyzer can access the Network Node Interface (NNI) of Synchronous Multiplexer/Demultiplexer systems in the world at 52, 156, 622 and 2488 Mb/s. The transmitter and receiver are housed in separate cabinets and can be operated independently. The analyzer has a variety of modules so the required measurement can be easily performed just by changing the module. In particular, a wide variety of optical sender units is available at 1.31/1.55 wavelengths, along with a wide variety of optical receiver and jitter units at various bit rates.

Features

- Meets mapping requirements for both SDH and SONET
 - Module system, upgradable from 622 Mb/s to 2488 Mb/s provided.
 - Concatenation signal measurements for large capacity B-ISDN, ATM, etc telecommunications
 - Meets CID immunity measurement standards*
 - STM-16 (STS-48) 64-frame data generating/data logging
 - SOH/POH, 64-frame memory
 - Quick start and firmware upload
- * ITU-T (formerly CCITT) Rec. G. 958

SDH/SONET Analyzer ME3620A (Receiver) 93-05-10 13:23:47

Measurement condition

Bit rate: 2488 M Multiplexing structure: Type:SDH Unit: VC4 #01
Format: Bulk
Descramble: ON

Test pattern / Delay measurement
Info. pattern: PRBS 2*23-1 OH byte: SOH #01 DI-3
OH pattern: PRBS 2*15-1

Cons. 0/1 : OFF
Delay measurement: OFF

Measurement data (all) Start 93-05-10 13:23:40
Alarm: Sec Elapse 00-00:00:06
Error: Rate Remain 00-00:14:54

Section	AU	Info.	Signalling OH
LOS 0 μs	AIS 0 μs		
LOF 0 μs	LOF 0 μs		
LOF 0 μs	FERF 0 μs		
AIS 625 μs		Sync. loss 0 μs	OH sync. loss 0 μs
FERF 0 μs			
B1 2.9E-06	B3 6.1E-06	Bit 1.5E-04	OH bit 9.5E-05
B2 7.6E-05	FERE 1.8E-07		

Measurement condition (Receiver)

SDH/SONET Analyzer ME3620A (Transmitter) 93-05-10 15:23:47

Measurement condition

Bit rate: 2488 M Multiplexing structure: Type:SDH-Internal Unit: VC4 #01
Format: Bulk
Descramble: ON

Test pattern / Delay measurement
Info. pattern: PRBS 2*23-1 OH byte: SOH #01 DI-3
OH pattern: PRBS 2*15-1

Cons. 0/1 : OFF
Delay measu: OFF

Alarm add. add

Alarm add. add

Bit error add

Parity add

FERE error add

Measurement condition (Transmitter)

SDH/SONET Analyzer ME3620A (Receiver) 93-05-10 13:23:47

Measurement condition

Bit rate: 2488 M Multiplexing structure: Type:SDH Unit: VC4 #01
Format: Bulk
Descramble: ON

Monitor data display
K1 00000001 AU PTR 000 00 0 POH VC4 J1 00000000
K2 00001000 OH alarm byte 00000000

Frame monitor
TYPE: SOH: #01

	IT	33	49	65	81	97	113	129	POH VC4
1	F6	F5	F6	28	28	28	01	F4	F4
2	SC	00	00	00	00	00	00	00	00
3	00	00	00	00	00	00	00	00	00
4	68	93	93	00	FF	00	00	00	00
5	0C	E5	44	01	00	00	18	00	00
6	20	00	00	79	00	00	3E	00	00
7	E9	00	00	79	00	00	88	00	00
8	E9	00	00	00	00	00	81	00	00
9	00	00	00	00	00	00	00	00	00

SOH/POH data monitoring (Receiver)

Transmitter unit

Modular unit	Operation Bit rate			
	52 Mb/s	156 Mb/s	622 Mb/s	2.5 Gb/s
ME0301A Main Frame				
ME0302A 622M Clock Generator	✓	✓	✓	
ME0302B 2.5G Clock Generator	✓	✓	✓	✓
ME0303A 622M Jitter Generator	✓	✓	✓	
ME0303B 2.5G Jitter Generator	✓	✓	✓	✓
ME0304A 622M Pattern Generator	✓	✓	✓	
ME0304B 2.5G Pattern Generator	✓	✓	✓	✓
ME0305A 622M Optical Sender (1.31/1.55 μm)	✓	✓	✓	
ME0305A1 622M Optical Sender (1.31 μm)	✓	✓	✓	
ME0305B 2.5G Optical Sender (1.31/1.55 μm)	✓	✓	✓	✓
ME0305B1 2.5G Optical Sender (1.31 μm)	✓	✓	✓	✓
ME0306A CMI/B3ZS Encoder	✓	✓		

Receiver unit

Modular unit	Operation Bit rate			
	52 Mb/s	156 Mb/s	622 Mb/s	2.5 Gb/s
ME0301A Main Frame				
ME0312A 622M Data Memory	✓	✓	✓	
ME0312B 2.5G Data Memory	✓	✓	✓	✓
ME0313A 622M Jitter Detector	✓	✓	✓	
ME0313B 2.5G Jitter Detector	✓	✓	✓	✓
ME0314A 622M Error Detector	✓	✓	✓	
ME0314B 2.5G Error Detector	✓	✓	✓	✓
ME0315A 622M Optical Receiver			✓	
ME0315B 2.5G Optical Receiver			✓	✓
ME0315C 156M Optical Receiver	✓	✓		
ME0316A CMI/B3ZS Decoder	✓	✓		

Option

Option No.	Contents	Related Modular units
01	RS-232C Interface	ME0301A Main Frame
02	PTA (with JIS keyboard)	
03	PTA (without keyboard)	
24	PDH-1 module (45M/1.5M)	ME0304A/B Pattern Generator ME0314A/B Error Detector
25	PDH-2 module (139M/34M/2M/*1.5M/1.5M)	
26	PDH-3 module (139M/45M/34M/2M/*1.5M/1.5M)	
31	TX 64 Frame Memory module (52M/156M/622M)	ME0304A Pattern Generator
32	TX 64 Frame Memory module (52M/156M/622M/2.5G)	ME0304B Pattern Generator

In the case of 1.5 M, the mapping routes are as follows.

1.5M	ITU-T (formerly CCITT)	C11 ↔ VC11 ↔ TU11 ↔ TUG2 ↔ VC3 ↔ AU3 ↔ STM□
	SONET	DS1 ↔ VT1.5SPE ↔ VT1.5 ↔ STS1SPE ↔ STS□
*1.5M	ITU-T (formerly CCITT)	C11 ↔ VC11 ↔ TU12 ↔ TUG2 ↔ TUG3 ↔ VC4 ↔ AU4 ↔ STM□

Specifications

Mapping mode	SDH, SONET selectable
Mapping route	VC4: Bulk (Standard), 139M (Option 25/26) VC3: Bulk (Standard), 45M (Option 24/26), 34M (Option 25/26) VC12: 2M (Option 25/26) VC11: 1.5M (Option 24/25/26), *1.5M (Option 25/26) Add/Drop: 45M/1.5M (Option 24), 139M/34M/2M/*1.5M/1.5M (Option 25), 139M/45M/34M/2M/*1.5M/1.5M (Option 26) Insert/Extract: STM-0 (STS-1), STM-1 (STS-3) Through (Line jitter and bit error addition to following signals): External through data: Retransmit external through data only SOH/RSOH: Overwrites SOH (SOH 1st to 3rd row) STS-1/STM-1: Overwrites selected one channel Concatenation: VC4-4c (STS-12c), VC4-16c (STS-48c)
Clock	Internal: Frequency: 2488.32 MHz, 622.08 MHz, 155.52 MHz, 51.84 MHz Frequency accuracy: ±10 ppm Freq. variable range: ±50 ppm (1 ppm steps) External: Frequency: 2488.32 MHz, 622.08 MHz, 155.52 MHz, 51.84 MHz Frequency range: ±1% Level: 0.8 to 1.2 Vp-p or ECL level External sync signal: DSC: 2.048 MHz, 1.544 MHz, 64 kHz Insert: 155.52 MHz, 51.84 MHz Through: 311.04 MHz, 77.76 MHz, 19.44 MHz, 6.48 MHz

Continued on next page

<p>Test pattern</p>	<p>SDH main signal: PRBS: 2ⁿ-1 (n: 9, 11, 15, 20, 23) PRGM: 8 bit programmable SDH SOH/POH: PRBS: 2ⁿ-1 (n: 11, 15) PRGM: 8 bit programmable CID (ITU-T* Rec. G.958) 0/1 consecutive bytes: 1 to 100 bytes (1 byte steps) Zero signal: All 0 pattern except 1 and 2 row of SOH Consecutive 0/1 signal (signal inserted into SDH or Zero signal): 0/1 consecutive bytes: 1 to 100 bytes (1 byte steps), 1 to 87 bytes (1 byte steps, 52M) PDH (Option 24/25/26): 139M: PRBS 2ⁿ-1 (n: 15, 23), all 0, all 1 45M: PRBS 2ⁿ-1 (n: 15, 20, 23), all 0, all 1 34M: PRBS 2ⁿ-1 (n: 15, 20, 23), all 0, all 1 2M: PRBS 2ⁿ-1 (n: 15, 20, 23), all 0, all 1 1.5M: PRBS 2ⁿ-1 (n: 15, 20, 20 zero suppression, 23), all 0, all 1 No frame signal: PRBS: 2ⁿ-1 (n: 7, 9, 11, 15, 20, 23) PRGM: 8 bit programmable FIX: 1/8, 7/8, all 0, all 1</p>
<p>Error addition</p>	<p>Bit error: Internal: 5 × 10⁻³ or 1 × 10⁻ⁿ (n: 3 to 10), single External: Depends on external error signal Parity error (B1, B2, B3, BIP2, FEBE): Internal: Single, all, alternate, rate (10⁻³ to 10⁻¹⁰) External: Depends on external error signal</p>
<p>Alarm addition</p>	<p>LOS, OOF, LOF, AIS, FERF, LOP</p>
<p>Pointer test</p>	<p>ITU-T* Rec. G.783 or ANSI T1X1.6 (only available with Option 24/25/26): Sequence: Burst, Addition, Cancellation, Mixed Type: Positive justification, Negative justification Pointer 64-frame memory (H1, H2): NDF: 0000 to 1111, SS: 00 to 11, Pointer values: 0 to 1023 Pointer setting, monitor: TX: Manual setting NDF, SS, PTR value RX: Monitoring</p>
<p>SOH/POH data setting/monitor</p>	<p>64-frame memory: All SOH (TOH)/POH bytes except parity, H1 and H2 bytes, 64-frame capacity Setting/monitor: TX manual setting, RX monitoring</p>
<p>Frame data memory</p>	<p>Data memory capacity (TX): Option 31: 622M 64 frames Option 32: 2.5G 64 frames Logging memory capacity (RX): Standard: SOH (TOH)/POH one byte 64 frames, K1/K2 64 frames Unit Option: All 64 frames data (ME0312A: 622M 64 frames, ME0312B: 2.5G 64 frames)</p>
<p>Measurement</p>	<p>Error detection: Bit, B1, B2, B3, BIP2, FEBE Alarm detection: LOS, OOF, LOF, AIS, FERF, LOP Error measurement range: Error count: 0 to 9.9 × 10¹⁸, Error rate: 1.0 to 1.0 × 10⁻¹⁸, Error seconds: 0 to 9 × 10⁹ % Error seconds: 0 to 100, Error Performance Analysis (ITU-T* Rec. G.784) Alarm measurement range: Seconds: 0 to 9 × 10⁹, frame: 0 to 9.9 × 10¹⁸ Delay measurement: 1 μs to 10 s APS function (K1, K2 bytes): Response time, Recovery time, Changing time</p>
<p>Line jitter</p>	<p>TX jitter addition (ME0303A/B Jitter Generator Unit: option): ME0303A: 622.08 MHz, 155.52 MHz, 51.84 MHz (ITU-T* Rec. G.958/825, SONET Category II) ME0303B: 2488.32 MHz, 622.08 MHz, 155.52 MHz, 51.84 MHz (ITU-T* Rec. G.958/825, SONET Category II) RX jitter measurement (ME0313A/B Jitter Detector Unit: option): ME0313A: 622.08 MHz, 155.52 MHz, 51.84 MHz (ITU-T* Rec. G.958/825, SONET Category II) ME0313B: 2488.32 MHz, 622.08 MHz, 155.52 MHz, 51.84 MHz (ITU-T* Rec. G.958/825, SONET Category II)</p>
<p>Electrical interface</p>	<p>STM-N, STS-N: Frequency: 2488.32/622.08/155.52/51.84 MHz Scramble/Descramble: ON/OFF Input/Output: 1 (NRZ data, Clock) Level: Variable 0.5 to 2.0 Vp-p, ECL, 50 Ω Logic/polarity: DATA/DATA, CLOCK/CLOCK PDH (Option 24/25/26): Frequency: 139.264 MHz (CMI), 44.736 MHz (B3ZS), 34.368 MHz (HDB3), 2.048 MHz (HDB3), 1.544 MHz (B8ZS) Level: 1 Vp-p/75 Ω (139.264 MHz), 0.9 Vo-p or DSX/75 Ω (44.736 MHz), 1 Vo-p/75 Ω (34.368 MHz), 2.37 Vo-p/75 Ω (2.048 MHz), 2.37 Vo-p or DSX/75 Ω (1.544 MHz) CMI/B3ZS (ME0306A Encoder/ME0316A Decoder Unit: option): Frequency: 155.52 MHz (CMI), 51.84 MHz (B3ZS) Level: Compatible with ITU-T* G.703/TA-NWT-000253, 75 Ω Insert/Extract frequency and data format: Unipolar interface: 155.52/51.84 MHz, clock and data ECL, 75 Ω, Insert/Extract (TX or RX) Coded data interface: 155.52 MHz (CMI), 51.84 MHz (B3ZS), compatible with ITU-T*/ANSI, 75 Ω, Insert (TX only) Add/Drop frequency and data format: Option 24: 44.736 MHz (B3ZS), 1.544 MHz (B8ZS) Option 25: 139.264 MHz (CMI), 34.368 MHz (HDB3), 2.048 MHz (HDB3), 1.544 MHz (B8ZS) Option 26: 139.264 MHz (CMI), 44.736 MHz (B3ZS), 34.368 MHz (HDB3), 2.048 MHz (HDB3), 1.544 MHz (B8ZS) SOH/POH: Frequency: 576 kHz (D4 to D12), 192 kHz (D1 to D3), 128 kHz (K1/K2), 64 kHz (selected 1-byte in SOH or POH) Level: TTL/75 Ω (TX clock output, RX clock output, RX data output), TTL/75 Ω or High (TX data input) Through: Frequency: 311.04 MHz, 77.76 MHz, 19.44 MHz, 6.48 MHz Input/output number: 8 (1/8 data), 1 (1/8 clock), 1 (frame, 8 kHz) Level: ECL/50 Ω</p>



Optical interface	<p>Optical Sender Unit (option): ME0305A: 51.84 to 622.08 Mb/s, Source type FP-LD, Extinction ratio 13 dB, +2 dBm \pm3 dB (1.31 μm), 0 dBm \pm3 dB (1.55 μm) ME0305A1: 51.84 to 622.08 Mb/s, Source type FP-LD, Extinction ratio 13 dB, +2 dBm \pm3 dB (1.31 μm) ME0305B: 51.84 to 2488.32 Mb/s, Source type FP-LD, Extinction ratio 13 dB, +2 dBm \pm3 dB (1.31 μm), 0 dBm \pm3 dB (1.55 μm) ME0305B1: 51.84 to 2488.32 Mb/s, Source type FP-LD, Extinction ratio 13 dB, +2 dBm \pm3 dB (1.31 μm)</p> <p>Optical safety standard: FDA 21 CFR 1040: CLASS IIIb IEC 825-1: CLASS 3A</p> <p>Optical Receiver Unit (option): ME0315A: 622 Mb/s, -20 to -3 dBm (1.31/1.55 μm) ME0315B: 622/2488 Mb/s, -13 to -3 dBm (1.31/1.55 μm) ME0315C: 52/156 Mb/s, -20 to -3 dBm (1.31/1.55 μm)</p>
Auxiliary input and output	<p>TX: Error control input, Alarm control input, Trigger output, Frame sync output RX: Trigger input, Trigger output, Frame sync output, Clock output</p>
Remote control	<p> GPIB: 1 + (1), RS-232C (Option 01): (1), Parallel I/O: 1</p>
Power supply	<p>85 to 135/170 to 250 Vac, 47 to 63 Hz</p>
Operating temperature range	<p>0° to +50°C (+5° to +45°C for FD, 0° to +40°C for ME0315A/B/C)</p>
Dimensions and mass	<p>221.5H \times 426W \times 451D mm (Transmitter and receiver), \leq25 kg (each transmitter and receiver)</p>

*: formerly CCITT

Ordering information

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

Model/Order No.	Name	Quantity	Remarks
ME0301A	Main frame Main frame		
	Standard accessories (for main frame)		
J0491	Power Cord, 2.5 m:	1 pc	For 100 V mains For 200 V mains
F0079	Fuse, 10 A:	2 pcs	
F0071	Fuse, 8 A:	2 pcs	
W0670AE	SDH Operation Manual:	1 copy	
W0671AE	SONET Operation Manual:	1 copy	
W0672AE	GPB Operation Manual:	1 copy	
	Option (factory assembly required)		
Option 01	RS-232C Interface		
	Standard accessories (for Option 01)		
W0673AE	RS-232C Interface Operation Manual:	1 copy	
Option 02	PTA (with keyboard)		
	Standard accessories (for Option 02)		
MC3305A	Keyboard (JIS type):	1 pc	
W0674AE	PTA Operation Manual:	1 copy	
Option 03	PTA (without keyboard)		
	Standard accessories (for Option 03)		
W0674AE	PTA Operation Manual:	1 copy	
Option 24	PDH-1 Module		45M, 1.5M
Option 25	PDH-2 Module		139M, 34M, 2M, 1.5M
Option 26	PDH-3 Module		139M, 45M, 34M, 2M, 1.5M
ME0302A	622M Clock Generator Unit		
ME0302B	2.5G Clock Generator Unit		
	Standard accessories		
J0609C	Semirigid Cable:	1 pc	50 Ω , U link
J0610	Coaxial Cord:	1 pc	75 Ω , U link
ME0303A	622M Jitter Generator Unit		
ME0303B	2.5 G Jitter Generator Unit		
	Standard accessories		
J609C	Semirigid Cable:	1 pc	50 Ω , U link
J0610	Coaxial Cord:	1 pc	75 Ω , U link
J0126B	Coaxial Cord, 2 m:	1 pc	BNC-P•3C-2V•BNC-P
ME0304A	622M Pattern Generator Unit		
	Standard accessory		
J0126B	Coaxial Cord, 2 m:	2 pc	BNC-P•3C-2V•BNC-P
	Options (factory assembly required)		
Option 31	TX 64 Frame Memory Module		

Continued on next page

Model/Order No.	Name	Remarks
ME0304B	2.5G Pattern Generator Unit	
J0126B	Standard accessory Coaxial Cord, 2 m: 2 pcs	BNC-P•3C-2V•BNC-P
Option 32	Options (factory assembly required) TX 64 Frame Memory Module	
ME0305A ME0305A1 ME0305B ME0305B1	622M Optical Sender Unit 622M Optical Sender Unit 2.5G Optical Sender Unit 2.5G Optical Sender Unit	1.31/1.55 μm 1.31 μm 1.31/1.55 μm 1.31 μm
J0609D E0007	Standard accessories Semirigid Cable: 1 pc Optical Output Control Key: 2 pcs	50 Ω , U link
ME0305A/A1/B/B1-01 ME0305A/B-02 ME0305A/A1/B/B1-38 ME0305A/A1/B/B1-39 ME0305A/A1/B/B1-40 ME0305A/A1/B/B1-43	Options DFB-LD Module DFB-LD Module ST Connector Adaptor DIN Connector Adaptor SC Connector Adaptor HMS-10/A Connector Adaptor	$\lambda = 1.31 \mu\text{m}$ $\lambda = 1.55 \mu\text{m}$
ME0306A	CMI/B3ZS Encoder	
J0609A	Standard accessory Semirigid Cable: 2 pcs	50 Ω , U link
ME0312A ME0312B	622M Data Memory Unit 2.5G Data Memory Unit	
J0611C	Standard accessory Multi-Contact Coax. Cable, 0.2 m: 1 pc	
ME0313A ME0313B	622M Jitter Detector 2.5G Jitter Detector	
J0668A	Standard accessory Semirigid Cable: 1 pc	50 Ω , U link
ME0314A ME0314B	622M Error Detector Unit 2.5G Error Detector Unit	
J0126B J0611A	Standard accessory Coaxial Cord, 2 m: 2 pcs Multi-Contact Coax. Cable, 0.7 m: 1 pc	BNC-P•3C-2V•BNC-P
ME0315A ME0315B ME0315C	622M Optical Receiver Unit 2.5G Optical Receiver Unit 156M Optical Receiver Unit	
J0634E J0634F	Standard accessories Semirigid Cable: 1 pc Semirigid Cable: 1 pc	50 Ω , U link (1) for Clock 50 Ω , U link (2) for Data
ME0315A/B/C-38 ME0315A/B/C-39 ME0315A/B/C-40 ME0315A/B/C-43	Options ST Connector Adaptor DIN Connector Adaptor SC Connector Adaptor HMS-10/A Connector Adaptor	
ME0316A	CMI/B3ZS Decoder	
J0609A	Standard accessory Semirigid Cable: 2 pcs	50 Ω , U link
MN9605C MN9610A MP9653A MP9654A MP9655A MA1418A MA1514A MA1515A MA1619A ML9001A MA9711A MB24C MC3305A MC3306A	Application equipments Optical Attenuator Programmable Optical Attenuator Waveform Monitor Waveform Monitor Waveform Monitor 4th-order Bessel-Thomson LPF 4th-order Bessel-Thomson LPF 4th-order Bessel-Thomson LPF 4th-order Bessel-Thomson LPF Power Meter Optical Sensor Portable Test Rack JIS Type PTA Keyboard ASCII Type PTA Keyboard	52 Mb/s 156 Mb/s 622 Mb/s 2.5 Gb/s Rating current of power cord and plug: 15 A



Continued on next page

Model/Order No.	Name	Remarks
J0056	Optical Fiber Cable, 1 m	For FC connector, SM fiber
J0486	Optical Fiber Cable, 1 m	For PC connector, SM fiber
J0635	Optical Fiber Cable, 1 m	For super PC connector, SM fiber
J0519	FC-ST Conversion Cable, 1 m	For SM fiber
FC-AP	Adaptor	FC-type
J0517	FC-DIN Conversion Cable, 1 m	For SM fiber
J0521	FC-SC Conversion Cable, 1 m	For SM fiber
J0206	FC-DIAMOND Conversion Cable, 1 m	For SM fiber
J0210	FC-D4 Conversion Cable, 1 m	For SM fiber
J0208	FC-RUNGE Conversion Cable, 1 m	For SM fiber
J0636	FCPC-SCPC Conversion Cable, 1 m	For SM fiber
J0637	FCPC-D4PC Conversion Cable, 1 m	For SM fiber
J0008	GPIB Connection Cable, 2 m	
B0329D	Front Cover	
B0333D	Rack Mount Kit	
B0332	Joint Plate	
B0348	Soft Case	For one main frame (One front cover is necessary)
B0349	Unit Housing Case	For containing 6 units
J0503B	Coaxial Cord, 2 m	BNC plug•WECO 440A plug
J0616	Coaxial Cord, 2 m	BNC plug•Siemens plug
J0164	Balanced Cord, 2 m	M-3912•--•M-214S-SP
MA1314A	I-214/3 pole CF Adaptor	
MP35A	Matching Transformer, 75 Ω unbal/120 Ω bal	Fits to Siemens C42334-A282, 2048 kb/s

[1]: These lengths are expressed by symbols A, B and C in the order number, for example; J0056A, B or C, where A = 1 m, B = 2 m, C = 3 m.