

SDH/SONET ANALYZER ME3520A/3620A



The ME3520A/3620A 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 receivers 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 up load

*: ITU-T 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 2²³-1 OH byte :SOH #01 D1-3
OH pattern:PRBS 2¹⁵-1

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	LOP 0 μs	Sync. loss 0 μs	OH sync. loss 0 μs
LOP 0 μs	FERF 0 μs		
AIS 625 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	FEBE 1.6E-07		

Measurement condition (receiver)

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 00000000 AU PTR 0000 0 POH VC4 J1 00000000
K2 00000000 OH alarm byte 00000000

Frame monitor
TYPE: SOH:#01 POH VC4

	1	17	33	49	65	81	97	113	129	VC4
1	F6	F6	F6	28	28	28	01	AA	AA	00
2	3C	00	00	00	00	00	00	00	00	1B
3	00	00	00	00	00	00	00	00	00	01
4	C8	93	93	00	FF	FF	00	00	00	00
5	0C	E8	44	01	00	00	18	00	00	00
6	20	00	00	79	00	00	3E	00	00	00
7	E9	00	00	79	00	00	88	00	00	00
8	EA	00	00	CD	00	00	81	00	00	00
9	00	00	00	00	00	00	00	00	00	00

SOH/POH data monitoring (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
Scramble:ON

Test pattern / Delay measurement
Info. pattern :PRBS 2²³-1 OH byte :SOH #01 D1-3
OH pattern:PRBS 2¹⁵-1

Cons. 0/1 :OFF
Delay measu :OFF
Alarm additio :LOS

Alarm add.
A1 byte :LOF
A2 byte :Sect.AIS
Timing :AU AIS
Unit :AU FERG
Alarm time :OH alarm
Normal time :K1/K2
Frame shift

Alarm add
Bit error add
Parity
FEBE error add

Measurement condition (transmitter)

• 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	√	√	√	√
ME0303C 622M Jitter Generator	√	√	√	
ME0303D 2.5G Jitter Generator	√	√	√	√
ME0304A 622M Pattern Generator	√	√	√	
ME0304B 2.5G Pattern Generator	√	√	√	√
ME0305C 622M Optical Sender (1.31/1.55 μm)	√	√	√	
ME0305C1 622M Optical Sender (1.31 μm)	√	√	√	
ME0305D 2.5G Optical Sender (1.31/1.55 μm)	√	√	√	√
ME0305D1 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	√	√	√	√
ME0313C 622M Jitter Detector	√	√	√	
ME0313D 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)	
27	2048 kHz DCS	ME0302A Clock Generator ME0303C/D Jitter Generator
31	TX 64 frame memory module (52M/156M/622M)	ME0302A/B Pattern Generator
32	TX 64 frame memory module (52M/156M/622M/2.5G)	ME0304B Pattern Generator
ME0305C/C1/D/D1-37	FC optical connector adapter	ME0305C/C1/D/D1 Optical Sender (replaceable)
ME0305C/C1/D/D1-38	ST optical connector adapter	
ME0305C/C1/D/D1-39	DIN optical connector adapter	
ME0305C/C1/D/D1-40	SC optical connector adapter	
ME0305C/C1/D/D1-43	DIAMOND HMS-10/A connector adapter	ME0315A/B/C Optical Receiver
ME0315A/B/C-38	ST optical connector adapter	
ME0315A/B/C-39	DIN optical connector adapter	
ME0315A/B/C-40	SC optical connector adapter	
ME0315A/B/C-43	DIAMOND HMS-10/A connector adapter	

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

1.5M	SDH	C11 ↔ VC11 ↔ TU11 ↔ TUG2 ↔ VC3 ↔ AU3 ↔ STM []
	SONET	DS1 ↔ VT1.5SPE ↔ VT1.5 ↔ STS1SPE ↔ STS []
*1.5M	SDH	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 DCS: 2048 kb/s, 1544 kb/s, 64 kb/s Insert: 155.52 MHz, 51.84 MHz Through: 311.04 MHz, 77.76 MHz, 19.44 MHz, 6.48 MHz

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Test pattern	<p>SDH main signal PRBS: 2ⁿ-1 (n: 9, 11, 15, 20, 23) PRGM: 8 bit programmable</p> <p>SDH SOH/POH PRBS: 2ⁿ-1 (n: 11, 15) PRGM: 8 bit programmable</p> <p>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)</p> <p>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</p> <p>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>
Error addition	<p>Bit error Internal: 5 x 10⁻³ or 1 x 10⁻ⁿ (n: 3 to 10), single External: Depends on external error signal</p> <p>Parity error (B1, B2, B3, BIP2, FEBE) Internal: Single, all, alternate, rate (10⁻³ to 10⁻¹⁰) External: Depends on external error signal</p>
Alarm addition	LOS, OOF, LOF, AIS, FERF, LOP
Pointer test	<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</p> <p>Pointer 64-frame memory (H1, H2) NDF: 0000 to 1111, SS: 00 to 11, Pointer values: 0 to 1023</p> <p>Pointer setting, monitor TX: Manual setting NDF, SS, PTR value RX: Monitoring</p>
SOH/POH data setting/monitor	64-frame memory: All SOH (TOH)/POH bytes except parity, H1 and H2 bytes, 64-frame capacity Setting/monitor: TX manual setting, RX monitoring
Frame data memory	<p>Data memory capacity (TX) Option 31: 622M 64 frames Option 32: 2.5G 64 frames</p> <p>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>
Measurement	<p>Error detection: Bit, B1, B2, B3, BIP2, FEBE Alarm detection: LOS, OOF, LOF, AIS, FERF, LOP</p> <p>Error measurement range Error count: 0 to 9.9 x 10¹⁸, Error rate: 1.0 to 1.0 x 10⁻¹⁸, Error seconds: 0 to 9 x 10⁹ % Error seconds: 0 to 100, Error performance analysis (ITU-T Rec.G.784, G.826)</p> <p>Alarm measurement range Seconds: 0 to 9 x 10⁹, frame: 0 to 9.9 x 10¹⁸</p> <p>Delay measurement: 1 μs to 10 s APS function (K1, K2 bytes): Response time, recovery time, changing time</p>
Line jitter	<p>TX jitter addition (ME0303C/D Jitter Generator Unit: option) ME0303C: 622.08 MHz, 155.52 MHz, 51.84 MHz (ITU-T Rec. G.958/825, SONET Category II) ME0303D: 2488.32 MHz, 622.08 MHz, 155.52 MHz, 51.84 MHz (ITU-T Rec. G.958/825, SONET Category II)</p> <p>RX jitter measurement (ME0313C/D Jitter Detector Unit: option) ME0313C: 622.08 MHz, 155.52 MHz, 51.84 MHz (ITU-T Rec. G.958/825, SONET Category II) ME0313D: 2488.32 MHz, 622.08 MHz, 155.52 MHz, 51.84 MHz (ITU-T Rec. G.958/825, SONET Category II)</p>

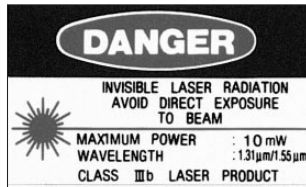
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Electrical interface	<p>STM-N, STS-N Bit rate: 2488.32/622.08/155.52/51.84 Mb/s Scramble/Descramble: ON/OFF Input/Output: 1 (NRZ data, Clock) Level: Variable 0.5 to 2.0 Vp-p, ECL, 50 Ω Logic/polarity: DATA/DATA, CLOCK/CLOCK PDH (Option 24/25/26) Bit rate: 139.264 Mb/s (CMI), 44.736 Mb/s (B3ZS), 34.368 Mb/s (HDB3), 2.048 Mb/s (HDB3), 1.544 Mb/s (B8ZS) Level: 1 Vp-p/75 Ω (139.264 Mb/s), 0.9 Vo-p or DSX/75 Ω (44.736 Mb/s), 1 Vo-p/75 Ω (34.368 Mb/s), 2.37 Vo-p/75 Ω (2.048 Mb/s), 2.37 Vo-p or DSX/75 Ω (1.544 Mb/s) CMI/B3ZS (ME0306A Encoder/ME0316A Decoder Unit: option) Bit rate (format): 155.52 Mb/s (CMI), 51.84 Mb/s (B3ZS) Level: Compatible with ITU-T G.703/TA-NWT-000253, 75 Ω Insert/Extract bit rate (format) Unipolar interface: 155.52/51.84 Mb/s, clock and data ECL, 75 Ω, Insert/Extract (TX or RX) Coded data interface: 155.52 Mb/s (CMI), 51.84 Mb/s (B3ZS), compatible with ITU-T/ANSI, 75 Ω, Insert (TX only) Add/Drop bit rate (format) Option 24: 44.736 Mb/s (B3ZS), 1.544 Mb/s (B8ZS) Option 25: 139.264 Mb/s (CMI), 34.368 Mb/s (HDB3), 2.048 Mb/s (HDB3), 1.544 Mb/s (B8ZS) Option 26: 139.264 Mb/s (CMI), 44.736 Mb/s (B3ZS), 34.368 Mb/s (HDB3), 2.048 Mb/s (HDB3), 1.544 Mb/s (B8ZS) SOH/POH Add/Drop Bit rate (unipolar): 576 kb/s (D4 to D12), 192 kb/s (D1 to D3), 128 kb/s (K1/K2), 64 kb/s (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) ME0305C: 51.84 to 622.08 Mb/s, Source type DFB-LD (SLM), Extinction ratio ≥10 dB, +2 dBm ±3 dB (1.31 μm), +2 dBm ±3 dB (1.55 μm) ME0305C1: 51.84 to 622.08 Mb/s, Source type DFB-LD (SLM), Extinction ratio ≥10 dB, +2 dBm ±3 dB (1.31 μm) ME0305D: 51.84 to 2488.32 Mb/s, Source type DFB-LD (SLM), Extinction ratio ≥10 dB, +2 dBm ±3 dB (1.31 μm), +2 dBm ±3 dB (1.55 μm) ME0305D1: 51.84 to 2488.32 Mb/s, Source type DFB-LD (SLM), Extinction ratio ≥10 dB, +2 dBm ±3 dB (1.31 μm) Optical safety standard FDA 21 CFR 1040.10: CLASS IIIb IEC 825-1: CLASS 3A Optical Receiver Unit (option) ME0315A: 622 Mb/s, -20 to -3 dBm (narrow band, 1.31/1.55 μm), -15 to -5 dBm (wide band, 1.31/1.55 μm) ME0315B: 622/2488 Mb/s, -13 to -3 dBm (narrow band, 1.31/1.55 μm), -8 to -3 dBm (wide band, 1.31/1.55 μm) ME0315C: 52/156 Mb/s, -20 to -3 dBm (narrow band, 1.31/1.55 μm), -15 to -5 dBm (wide band, 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>GPIO: 1+(1), RS-232C (Option 01): (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>426 (W) x 221.5 (H) x 451 (D) mm (transmitter and receiver), ≤25 kg (each transmitter and receiver)</p>
EMC*1	<p>EN55011: 1991, Group 1, Class A EN50082-1: 1992</p>
Safety	<p>EN61010-1: 1993 (Installation Category II, Pollution Degree II)</p>

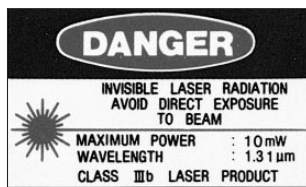
*1:Electromagnetic compatibility

Laser product safety protection

The ME0305C/C1/D/D1 are laser products and safety protection conforming to optical safety standards 21 CFR 1040.10 (USA) is incorporated; the following warning labels are affixed to the product.



Warning label example for ME0305C/D



Warning label example for ME0305C1/D1

Ordering information

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

Model/Order No.	Name	
ME0301A	Main frame Main Frame	
	Standard accessories (for main frame)	
J0491	Power cord, 2.5 m:	1 pc
F0079	Fuse, 10 A (for 100 V mains):	2 pcs
F0071	Fuse, 8 A (for 200 V mains):	2 pcs
W0670AE	SDH operation manual:	1 copy
W0671AE	SONET operation manual:	1 copy
W0672AE	GPIO operation manual:	1 copy
Option 01	Option (factory assembly required) 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	JIS Type PTA Keyboard:	1 pc
W0674AE	PTA operation manual:	1 copy
Option 03	PTA (without keyboard)	
	Standard accessories (for Option 03)	
W0674AE	PTA operation manual:	1 copy

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Model/Order No.	Name	
Option 24 Option 25 Option 26 Option 27 Option 28	PDH-1 module (45M, 1.5M) PDH-2 module (139M, 34M, 2M, 1.5M) PDH-3 module (139M, 45M, 34M, 2M, 1.5M) 2048 kHz DCS V.11 interface	
ME0302A ME0302B	622M Clock Generator Unit 2.5G Clock Generator Unit	
J0609C J0610	Standard accessories Semirigid cable (50 Ω, U link): Coaxial cord (75 Ω, U link):	1 pc 1 pc
ME0303C ME0303D	622M Jitter Generator Unit 2.5 G Jitter Generator Unit	
J609C J0610	Standard accessories Semirigid cable (50 Ω, U link): Coaxial cord (75 Ω, U link): Coaxial cord, BNC-P · 3C-2WS · BNC-P, 2 m:	1 pc 1 pc 1 pc
ME0304A	622M Pattern Generator Unit	
	Standard accessory Coaxial cord, BNC-P·3C-2WS·BNC-P, 2 m:	2 pcs
Option 31	Option (factory assembly required) TX 64 frame memory module	
ME0304B	2.5G Pattern Generator Unit	
	Standard accessory Coaxial cord, BNC-P·3C-2WS·BNC-P, 2 m:	2 pcs
Option 32	Option (factory assembly required) TX 64 frame memory module	
ME0305C ME0305C1 ME0305D ME0305D1	622M Optical Sender Unit (1.31/1.55 μm, DFB-LD) 622M Optical Sender Unit (1.31 μm, DFB-LD) 2.5G Optical Sender Unit (1.31/1.55 μm, DFB-LD) 2.5G Optical Sender Unit (1.31 μm, DFB-LD)	
J0609D E0007	Standard accessories Semi-rigid cable (50 Ω, U link): Optical output control key:	1 pc 2 pcs
	Options DFB-LD module (λ = 1.31 μm) DFB-LD module (λ = 1.55 μm) FC connector adapter ST connector adapter DIN connector adapter SC connector adapter HMS-10/A connector adapter	
ME0306A	CMI/B3ZS Encoder	
J0609A	Standard accessory Semi-rigid cable (50 Ω, U link):	2 pcs
ME0312A ME0312B	622M Data Memory Unit 2.5G Data Memory Unit	
J0785C	Standard accessory Multi-contact coaxial cable, 0.2 m:	1 pc
ME0313C ME0313D	622M Jitter Detector 2.5G Jitter Detector	
J0668A	Standard accessory Semirigid cable (50 Ω, U link):	1 pc
ME0314A ME0314B	622M Error Detector Unit 2.5G Error Detector Unit	
J0775D J0611A J0785A	Standard accessories Coaxial cord, BNC-P·3C-2WS·BNC-P, 2 m: Multi-contact coaxial cable, 0.7 m: Shielded multi-contact coaxial cable, 0.7 m (ME0314B only):	2 pcs 1 pc 1 pc

Model/Order No.	Name	
ME0315A ME0315B ME0315C	622M Optical Receiver Unit 2.5G Optical Receiver Unit 156M Optical Receiver Unit	
J0634E J0634F	Standard accessories Semirigid cable [50 Ω, U link (1) for clock]: Semirigid cable [50 Ω, U link (2) for data]:	1 pc 1 pc
	Options Wide band equalizing amplifier ST connector adapter DIN connector adapter SC connector adapter HMS-10/A connector adapter	
ME0315A/B/C-01 ME0315A/B/C-38 ME0315A/B/C-39 ME0315A/B/C-40 ME0315A/B/C-43		
ME0316A	CMI/B3ZS Decoder	
J0609A	Standard accessory Semirigid cable (50 Ω, U link):	2 pcs
MN9605C MN9610B MP9653A MP9654A MP9655A MA1418A MA1514A MA1515A MA1619A ML9001A MA9711A MB24C	Application equipments Optical Attenuator Programmable Optical Attenuator Waveform Monitor Waveform Monitor Waveform Monitor 4 th-order Bessel-Thomson LPF (52 Mb/s) 4 th-order Bessel-Thomson LPF (156 Mb/s) 4 th-order Bessel-Thomson LPF (622 Mb/s) 4 th-order Bessel-Thomson LPF (2.5 Mb/s) Optical Power Meter Optical Sensor Portable Test Rack (rating current of power cord and plug: 15 A) JIS Type PTA Keyboard ASCII Type PTA Keyboard Replaceable optical connector (FC, for ME0305C/C1/D/D1) Replaceable optical connector (ST, for ME0305C/C1/D/D1) Replaceable optical connector (DIN, for ME0305C/C1/D/D1) Replaceable optical connector (HMS10-A, for ME0305C/C1/D/D1) Replaceable optical connector (SC, for ME0305C/C1/D/D1) Connector Cleaning Set Optical fiber cable, 1 m (for FC connector, SM fiber) Optical fiber cable, 1 m (for super FC-PC connector, SM fiber) FC-ST conversion cable, 1 m (for SM fiber) Adapter (FC-type) FC-DIN conversion cable, 1 m (for SM fiber) FC-SC conversion cable, 1 m (for SM fiber) FC-DIAMOND conversion cable, 1 m (for SM fiber) FC-D4 conversion cable, 1 m (for SM fiber) FC-RUNGE conversion cable, 1 m (for SM fiber) FCPC-SCPC conversion cable, 1 m (for SM fiber) FCPC-D4PC conversion cable, 1 m (for SM fiber) GPIB cable, 2 m Front cover Rack mount kit Joint plate Soft case (for one main frame, one front cover is necessary.) Unit housing case (for containing 6 units) Coaxial cord, BNC plug·WECO 440A plug, 2 m Coaxial cord, BNC plug·Siemens plug, 2 m Balanced cord, M-3912·-·M-214S-SP, 2 m	
MC3305A MC3306A J0617B		
J0618D		
J0618E		
J0618F		
J0619B		
MZ8012A J0056[*] J0635[*]		
J0519[*] FC-AP J0517[*] J0521[*] J0206[*] J0210[*] J0208[*] J0692[*] J0637[*] J0008 B0329D B0333D B0332 B0348		
B0349 J0503B J0616 J0164		

[*]: 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.