

TABLE OF CONTENTS

SECTION	1	GENERAL	1-1
	1.1	Product Outline	1-1
	1.2	Organization of Operation Manual	1-5
	1.3	Equipment Configuration	1-6
	1.3.1	Standard composition	1-6
	1.3.2	Plug-in units	1-6
	1.3.3	Options	1-7
	1.4	Optional Accessories	1-8
	1.5	Selection Guide	1-9
	1.6	Peripherals	1-9
	1.6.1	Printer	1-9
	1.7	Specifications	1-10
SECTION	2	PREPARATION BEFORE USE	2-1
	2.1	Environmental Conditions at Installation Location ..	2-1
	2.2	Safety Measures	2-1
	2.3	Preparatory Operation before Power-on	2-1
SECTION	3	PANEL DESCRIPTION	3-1
	3.1	Panel Layout and Description	3-1
	3.2	Rear Connector Pin Configuration	3-19
	3.2.1	I/O PORT	3-19
	3.2.2	ERROR/ALARM OUTPUT	3-20
	3.2.3	SOH/POH MONITOR OUTPUT connector	3-21
SECTION	4	BRIEF OPERATION METHOD	4-1
	4.1	Condition When Power Supplied	4-1
	4.2	Screen Configuration	4-2
	4.2.1	MENU screen	4-3
	4.2.2	MEASUREMENT screen	4-4
	4.2.3	CONDITION: MEASURE screen	4-6

	4.2.4	CONDITION: SIG INTFC screen	4-7
	4.2.5	CONDITION: FRAME screen	4-8
	4.2.6	LOG DATA: CONDITION screen	4-9
	4.2.7	LOG DATA: MEASURE DATA screen	4-10
	4.2.8	LOCAL MEMORY screen	4-11
	4.2.9	FLOPPY DISK screen	4-12
	4.2.10	SYSTEM screen	4-13
	4.3	Data Setting Methods	4-14
	4.3.1	Group key and cursor keys	4-14
	4.3.2	Data input method	4-15
SECTION	5	DETAILED OPERATION	5-1
	5.1	Operating Standards	5-1
	5.2	Operating Mode	5-2
	5.3	Interface Conditions	5-3
	5.3.1	Interface frequency and signal type	5-4
	5.3.2	CLOCK mode	5-6
	5.3.3	Mapping route	5-7
	5.4	Inputting and Outputting Optical/Electric Signals ...	5-9
	5.4.1	CONDITION : SIG INTFC settings	5-10
	5.4.1.1	Setting transmitter unipolar clock	5-10
	5.4.1.2	Setting transmitter unipolar data	5-11
	5.4.1.3	Setting transmitter CMI signal	5-12
	5.4.1.4	Setting transmitter bipolar AMI signal	5-12
	5.4.1.5	Setting transmitter bipolar B3ZS signal	5-13
	5.4.1.6	Setting external input clock	5-13
	5.4.1.7	Setting external input data	5-14
	5.4.1.8	Scramble	5-14
	5.4.1.9	Setting receiver unipolar clock	5-15
	5.4.1.10	Setting receiver unipolar data	5-16
	5.4.1.11	Setting receiver CMI signal	5-17
	5.4.1.12	Setting receiver bipolar B3ZS signal	5-18
	5.4.1.13	Setting 1.5M DEMUX code	5-19

5.4.1.14	Setting 2M DEMUX code	5-20
5.4.1.15	Setting descramble	5-21
5.4.1.16	Setting optical input/output signal	5-21
5.4.2	Setting TEST CONDITION: SIG INTFC in MEASUREMENT screen	5-22
5.4.2.1	Setting unipolar clock	5-23
5.4.2.2	Setting unipolar data	5-24
5.4.2.3	Setting CMI signal	5-26
5.4.2.4	Setting bipolar AMI signal	5-27
5.4.2.5	Setting bipolar B3ZS signal	5-27
5.4.2.6	Setting external input signal	5-28
5.4.2.7	Setting DEMUX	5-28
5.4.2.8	Scramble	5-29
5.4.2.9	Setting optical input/output signal	5-29
5.5	Frame Data	5-30
5.5.1	Setting SOH/POH bytes	5-30
5.5.2	Setting U-OH	5-32
5.5.3	Setting PAYLOAD dummy bit	5-33
5.5.4	Y (AU4 PTR)	5-33
5.5.5	SYNTRAN	5-34
5.5.6	K1/K2, AU/TU PTR	5-34
5.5.7	Setting test pattern	5-37
5.5.7.1	Setting transmitter information bit	5-38
5.5.7.2	Setting transmitter OH byte	5-40
5.5.7.3	Setting transmitter signaling bit	5-42
5.5.7.4	Setting receiver information bit	5-42
5.5.7.5	Setting receiver OH byte	5-44
5.5.7.6	Setting receiver signaling bit	5-44
5.5.7.7	Add/Drop	5-45
5.6	Setting Measurement Conditions	5-50
5.6.1	Setting SES threshold value	5-51
5.6.2	Number of APS detection	5-51
5.6.3	C justification	5-52
5.6.4	Alarm detection/removal	5-52

5.6.5	Setting OH alarm-detection pattern	5-53
5.6.6	Resynchronization of false frame sync	5-53
5.7	Setting Error/Alarm Addition	5-54
5.7.1	Alarm-addition /error-addition memories	5-55
5.7.2	Setting alarm addition items	5-55
5.7.2.1	OFF	5-56
5.7.2.2	LOS	5-56
5.7.2.3	OOF	5-56
5.7.2.4	FR SHIFT	5-57
5.7.2.5	SECT AIS	5-57
5.7.2.6	FERF	5-57
5.7.2.7	AU AIS	5-58
5.7.2.8	TU AIS	5-58
5.7.2.9	AU LOP	5-58
5.7.2.10	TU LOP	5-59
5.7.2.11	VC4 RA	5-59
5.7.2.12	VC3 RA	5-60
5.7.2.13	VC2/1 RA	5-60
5.7.2.14	H4 OOF	5-60
5.7.2.15	HG AIS	5-61
5.7.2.16	HG REC	5-61
5.7.2.17	HG BAIS	5-61
5.7.2.18	K1	5-62
5.7.2.19	K1/K2	5-62
5.7.2.20	AU PTR	5-63
5.7.2.21	TU PTR	5-63
5.7.2.22	SOH/POH	5-64
5.7.2.23	C	5-64
5.7.2.24	C1/C2	5-64
5.7.2.25	0 SUBST	5-65
5.7.2.26	1 SUBST	5-65
5.7.2.27	PTR JUST	5-65
5.7.3	Alarm addition timing	5-66

5.7.3.1	EXT-SGL	5-66
5.7.3.1	EXT-SGL	5-66
5.7.3.2	EXT-ALL	5-67
5.7.3.3	INTL-SGL	5-67
5.7.3.4	INTL-ALL	5-68
5.7.3.5	INTL-ALTN	5-68
5.7.3.6	INTL-CY	5-69
5.7.3.7	Alarm time	5-70
5.7.4	Error addition items	5-71
5.7.4.1	OFF	5-71
5.7.4.2	BIT	5-72
5.7.4.3	B1	5-72
5.7.4.4	B2	5-72
5.7.4.5	VC4 B3	5-73
5.7.4.6	VC3 B3	5-73
5.7.4.7	VC2/1 BIP2	5-73
5.7.4.8	VC4 FEBE	5-74
5.7.4.9	VC3 FEBE	5-74
5.7.4.10	VC2/1 FEBE	5-74
5.7.5	Error-addition timing	5-75
5.7.5.1	EXT-SGL	5-75
5.7.5.2	EXT-ALL	5-75
5.7.5.3	INTL-SGL	5-76
5.7.5.4	INTL-ALL	5-76
5.7.5.5	INTL-RT	5-77
5.7.5.6	Error addition gate	5-77
5.7.6	Relationship between alarm sync output and alarm/error addition	5-79
5.8	APS Test	5-80
5.8.1	APS test items	5-81
5.8.1.1	TIME SET	5-82
5.8.1.2	ALM/ERR	5-83
5.8.1.3	TIME MEAS	5-84
5.9	Pointer mask	5-85

5.10	TSSI Pointer Offset	5-86
5.11	Measurement Mode/Measurement Time	5-87
5.12	DATA MONITOR	5-89
5.12.1	Display OH and its monitor output	5-90
5.13	Displaying Measured Results	5-91
5.13.1	ALL display	5-92
5.13.2	ZOOM display	5-94
5.14	Saving, Loading, and Initializing Setting State	5-97
5.15	GP-IB Address	5-98
5.16	Time and Date	5-99
5.16.1	Time	5-99
5.16.2	Date	5-100
5.17	LOG DATA : CONDITION	5-101
5.17.1	OUTPUT CONTROL	5-101
5.17.2	MEAS RESULT DATA CONTENTS, MEAS INTMD DATA CONTENTS	5-102
5.17.3	INTMD TIME	5-102
5.17.4	1-sec ERROR DATA CONTENTS	5-103
5.18	LOG DATA : MEASURE DATA	5-104
5.19	Floppy Disk	5-105
5.19.1	Data managed by floppy disk	5-105
5.19.2	File names and setting method	5-105
5.19.3	Saving	5-106
5.19.4	Loading	5-107
5.19.5	Deleting	5-109
5.19.6	Searching file	5-110
5.19.7	DISK FORMAT	5-112
5.19.8	Error message	5-112
5.20	Printer	5-113
5.20.1	Preparation	5-113
5.20.2	Type of data output to printer	5-113
5.21	Frame Memory (Option 01)	5-115
5.21.1	Frame data editing pre-operation and printout ...	5-116
5.21.2	Transmission data editing and outputting	5-118

5.21.2.1	Transmission data editing	5-118
5.21.2.2	Edited data outputting	5-119
5.21.3	Receiving frame data collection	5-120
5.21.3.1	PAYLOAD triggering	5-122
5.21.3.2	MANUAL triggering	5-122
5.21.3.3	EXT triggering	5-123
5.21.3.4	ERROR-detection triggering	5-123
5.21.3.5	Alarm-detection triggering	5-124
5.21.3.6	Triggering with pointer-value changing	5-124
5.21.3.7	OH triggering	5-125
5.21.4	64 frame (RX memory) monitoring	5-126
5.22	Simultaneous Measurement (Option 02)	5-127
5.22.1	Simultaneous measurement operation	5-128
5.22.2	Loop measurement operation	5-130
5.23	PTA function (Option 03, 04)	5-131
 SECTION	 6 MEASUREMENT	 6-1
6.1	Measuring Multiplexer	6-1
6.2	Measuring Demultiplexer	6-3
6.3	Measuring Cross-Connect Equipment	6-5
6.4	Monitoring and Collecting Data for Actual Line Signal	6-7
6.5	ALARM Addition	6-10
6.6	ERROR Addition	6-11
6.7	Data Through MDe	6-13
6.7.1	Unipolar external signal	6-13
6.7.2	Non-unipolar external signal	6-14
6.8	Add/Drop	6-16
6.8.1	1.544 Mb/s Add	6-16
6.8.2	1.544 Mb/s Drop	6-17
6.8.3	576 kHz (DCC) Add	6-18
6.8.4	576 kHz (DCC) Drop	6-19
6.9	APS Test	6-20
6.10	Delay Measurement	6-23

	6.11	Signaling	6-25
	6.12	Measuring Extinction Ratio	6-26
	6.13	Frame Memory (TX) (Option 01)	6-27
	6.14	Frame Memory (RX) (Option 01)	6-29
	6.15	Simultaneous Measurement (Option 02)	6-31
	6.16	Measuring STS12 and STS48	6-33
SECTION	7	FUNCTION TEST	7-1
	7.1	Introduction	7-1
	7.2	Test Item	7-2
	7.3	Test Procedure	7-4
	7.3.1	Function test procedure	7-4
	7.3.1.1	Testing DATA-SET, MONITOR, MAPPING and INTERFACE	7-4
	7.3.1.2	Testing ALARM and ERR-ADD	7-6
	7.3.1.3	Testing ADD-DROP	7-10
	7.3.2	Performance test procedure	7-12
	7.3.2.1	Measuring frequency accuracy	7-12
	7.3.2.2	Checking output waveform	7-13
SECTION	8	STORAGE AND TRANSPORTATION	8-1
	8.1	Regular Care	8-1
	8.2	Storage Precautions	8-1
	8.3	Transportation Precautions	8-2
APPENDIX A		LIST OF INITIAL VALUES	A-1
APPENDIX B		TABLES OF ABBREVIATIONS	B-1
APPENDIX C		MULTIPLEXING STRUCTURE	C-1