

# INTERNATIONAL STANDARD

# ISO/IEC 9318-3

First edition  
1990-12-15

---

---

## Information technology — Intelligent Peripheral Interface

### Part 3:

Device generic command set for magnetic and optical  
disk drives

(standards.iteh.ai)

*Technologies de l'information — Interface pour les périphériques intelligents —*

*ISO/IEC 9318-3:1990*

*Partie 3: Jeu de commandes génériques appareil pour les disques magnétiques et optiques*

*610a97a4ac45/iso-iec-9318-3-1990*



Reference number  
ISO/IEC 9318-3 : 1990 (E)

## Contents

	Page
Foreword .....	xxvii
Introduction .....	xxviii
1 Scope .....	1
2 Normative reference .....	2
3 Definitions and conventions .....	3
3.1 Definitions .....	3
3.2 Conventions .....	5
4 Logical interface characteristics .....	6
4.1 Operations .....	6
4.1.1 Commands .....	6
4.1.1.1 Command types .....	6
4.1.1.2 Command stacking .....	6
4.1.1.2.1 Individual .....	6
4.1.1.2.2 Queued .....	7
4.1.1.3 Command execution order .....	7
4.1.2 Operation responses .....	8
4.1.2.1 Interrupts .....	8
4.1.2.2 Response types .....	9
4.1.2.2.1 Command completion response .....	9
4.1.2.2.2 Transfer Notification Response (optional) .....	9
4.1.2.2.3 Asynchronous response .....	9
4.1.2.2.4 Imbedded data response (optional) .....	9
4.1.2.3 Response handling .....	9
4.1.3 Physical interface error recovery considerations .....	10
4.1.3.1 Recovery from unsuccessful Slave Status octet .....	10
4.1.3.2 Recovery from bad parity on the Slave Status octet .....	10
4.1.3.3 Recovery from bad parity on the Slave Status octet .....	10
4.2 Operation sequences .....	11
4.2.1 Slave procedures .....	11
4.2.2 Basic steps .....	11
4.2.2.1 Transmit Command packet to slave .....	11
4.2.2.2 Poll interrupts .....	12
4.2.2.3 Receive Response packet from slave .....	12
4.2.2.4 Transfer of data between master and slave .....	12
4.2.3 Operation sequence examples .....	13
4.2.3.1 Example of facility selection and individual commands .....	13
4.2.3.2 Example of facility selection and queued commands .....	13
4.2.3.3 Example of slave selection .....	14
4.2.3.4 Example of slave selection and slave control of Bus .....	14
4.3 Multiplexed data transfers (optional) .....	15
4.3.1 Physical interface Pause and Continue (optional) .....	15
4.3.2 Slave pause and master Continue .....	15
4.3.2.1 Implicit continue .....	16
4.3.2.2 Explicit continue .....	16
4.3.3 Slave control of Pause and Continue .....	16
4.3.4 Master control of Pause and Continue .....	16
4.3.5 Uses of multiplexing .....	17
4.3.5.1 One paused transfer per facility .....	17

© ISO/IEC 1990

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

ISO/IEC Copyright Office • Case postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

4.3.5.2	One paused transfer per slave	17
4.3.5.3	Multiple paused transfers per slave	17
4.3.6	Anticipated pause	17
4.3.6.1	Master stays selected	17
4.3.6.2	Master deselects	18
4.3.7	Unanticipated pauses by the slave	18
4.3.8	Unanticipated pauses by the master	18
4.3.9	Multiplexed transfer mode identification	18
4.4	Data groupings	18
4.4.1	PhysicalBlocks	19
4.4.2	DataBlocks	19
4.4.3	Extents	19
4.4.4	Partitions	19
4.4.4.1	Slave-defined partitions	20
4.4.4.1.1	Data partition	20
4.4.4.1.2	Maintenance partitions	20
4.4.4.2	Master-defined partitions	20
4.4.4.2.1	Data partitions	20
4.4.4.2.2	Maintenance partitions	20
4.4.5	Alternate data areas	20
4.4.6	Physical groups	20
4.5	Media addressing definitions	21
4.5.1	Absolute addressing	21
4.5.2	Physical addressing	21
4.5.3	Logical addressing	22
4.5.4	Media defect management considerations	22
4.6	Interface addressing definitions	23
4.6.1	Actual Addresses	23
4.6.2	Selection Addresses	23
4.6.3	Command Addresses	23
4.6.4	Facility Address	24
4.6.5	Synonym Addresses (optional)	24
4.6.6	Alias Addresses (optional)	24
4.6.7	Partition parameters	25
4.6.8	Communication addresses (optional)	25
4.6.9	Address examples	26
4.7	Slave and facility conditions	26
4.7.1	Interface conditions	27
4.7.1.1	P-Available	27
4.7.1.2	Not P-Available	27
4.7.1.3	Operational	27
4.7.1.4	Not Operational	28
4.7.1.5	P-Busy	28
4.7.1.6	Not P-Busy	28
4.7.1.7	L-Available	28
4.7.1.8	Not L-Available	28
4.7.1.9	L-Busy	28
4.7.1.10	Not L-Busy	28
4.7.2	General conditions	28
4.7.2.1	Active	28
4.7.2.2	Inactive	28
4.7.2.3	Status Pending	29
4.7.2.4	Reset	29
4.7.3	Operating status	29
4.8	Multiple ports (optional)	30
4.8.1	Slave switching	30
4.8.1.1	Physical switch	31
4.8.1.2	Logical switch	31
4.8.1.3	Mixed switch types	32
4.8.2	Facility switching	32

4.8.3 Slave static switching	33
4.8.3.1 Disabling a slave port	33
4.8.3.2 Enabling a slave port	33
4.8.4 Facility static switching	33
4.8.4.1 Disabling a facility	34
4.8.4.1.1 Disabling a facility at a slave port	34
4.8.4.1.2 Disabling a facility at a facility port	34
4.8.4.2 Enabling a facility	34
4.8.4.2.1 Enabling a facility at a slave port	34
4.8.4.2.2 Enabling a facility at a facility port	35
4.8.5 Slave dynamic switching	35
4.8.5.1 Neutral Mode	35
4.8.5.2 Switched Mode	35
4.8.5.3 Implicitly switched	35
4.8.5.4 Explicitly switched	36
4.8.6 Facility dynamic switch	36
4.8.6.1 Facility neutral mode	36
4.8.6.1.1 Facility neutral mode at the slave port	36
4.8.6.1.2 Facility neutral mode at the facility port	36
4.8.6.2 Facility switched mode	36
4.8.6.2.1 Facility switched mode at a slave port	37
4.8.6.2.2 Facility switched mode at a facility port	37
4.8.6.3 Implicitly switched facilities	37
4.8.6.3.1 Implicitly switched facilities at a slave port	37
4.8.6.3.2 Implicitly switched facility at a facility port	37
4.8.6.4 Explicitly switched facilities	37
4.8.6.4.1 Explicitly switched facilities at a slave port	38
4.8.6.4.2 Explicitly switched facilities at a facility port	38
4.8.7 Allegiances	38
4.8.7.1 Multiple allegiances	38
4.8.7.2 Explicit group allegiance	38
4.8.8 Alternate port notification of changes	38
4.9 Reset	38
4.9.1 External reset	38
4.9.2 Internal reset	39
4.10 Bus octets	39
4.10.1 Facility selection & request facility interrupts octets	39
4.10.2 Bus Control octet	39
4.10.3 Bus Acknowledge octet	39
4.10.4 Master Status octet	40
4.10.4.1 Bit definitions	40
4.10.4.2 Valid combinations	40
4.10.5 Slave Status octet	41
4.10.5.1 Bit definitions	41
4.10.5.2 Valid combinations	42
4.10.6 Request interrupts octet	42
4.10.7 Selective Reset Control octet	42
4.11 ATTENTION IN signal	43
4.12 Information transfers	43
4.12.1 Packet transfer conventions	43
4.12.2 Bit significance conventions	44
4.12.3 Octet significance conventions	44
4.12.4 Command and Response packet conventions	44
4.12.5 Data transfer conventions	45
5 Message packet structure	46
5.1 Conventions	46
5.1.1 General organization	46
5.1.2 Parameters	46
5.1.2.1 Parameter documentation	46

5.1.2.2	Parameter length	47
5.1.2.3	Parameter ID	47
5.1.3	Message packet representation in the document	47
5.2	Operation Command packets	48
5.2.1	Fields in Command packets	48
5.2.1.1	Packet Length	48
5.2.1.2	Command Reference Number	48
5.2.1.3	Slave Address	48
5.2.1.4	Facility Address	49
5.2.1.5	Opcode	49
5.2.1.6	Modifier octet	50
5.2.1.7	Parameters	50
5.2.2	Basic Command Message packet	50
5.2.3	Command packet parameter requirements	52
5.2.3.1	Control Command packet	52
5.2.3.2	Position Command packet	52
5.2.3.3	Transfer and Other Transfer Command packet	52
5.2.3.4	Combination Transfer Command packet (optional)	52
5.2.3.5	Diagnostic Command packet	52
5.2.4	Transferring parameters as data	52
5.2.4.1	Writing	52
5.2.4.2	Reading	52
5.2.4.3	Example	53
5.2.4.3.1	General	53
5.2.4.3.2	Specific	54
5.3	Operation Response Message packets	54
5.3.1	Fields In Response packets	54
5.3.1.1	Packet Length	54
5.3.1.2	Command Reference Number	54
5.3.1.3	Slave address	54
5.3.1.4	Facility address	54
5.3.1.5	Opcode	55
5.3.1.6	Modifier	55
5.3.1.7	Response Type	55
5.3.1.8	Major Status	55
5.3.1.9	Parameters	55
5.3.2	Basic Response packet	56
5.3.3	Response packet parameter requirements	56
5.3.3.1	Control Response packet	56
5.3.3.2	Position Response packet	56
5.3.3.3	Transfer and Other Transfer Response packet	56
5.3.3.4	Combination Transfer Response packet (optional)	56
5.3.3.5	Diagnostic Response packet	56
5.3.3.6	Asynchronous Response packet	56
5.3.3.7	Transfer Notification packet (optional)	57
5.3.3.8	Imbedded Data Response packet (optional)	57
5.4	Status	58
5.4.1	Major Status	58
5.4.2	Substatus	58
5.4.2.1	Intervention Required (ID='x4')	59
5.4.2.1.1	Not P-Available	59
5.4.2.1.2	Not Ready	59
5.4.2.1.3	Not P-Available transition	59
5.4.2.1.4	Not Ready transition	59
5.4.2.1.5	Physical Link failure	59
5.4.2.1.6	Attribute Table may be corrupted	59
5.4.2.1.7	Addressee Busy	60
5.4.2.2	Alternate Port exception (ID='x5')	60
5.4.2.2.1	Priority Reserve issued	60
5.4.2.2.2	Attributes updated	60

## ISO/IEC 9318-3 : 1990 (E)

5.4.2.2.3	Initialization completed	60
5.4.2.2.4	Format completed	60
5.4.2.2.5	Facility switched to another port	60
5.4.2.2.6	Slave Diagnostic in progress	61
5.4.2.2.7	Slave Diagnostic terminated	61
5.4.2.3	Machine Exception (ID='x6')	61
5.4.2.3.1	Addressee no longer busy	61
5.4.2.3.2	P-Available transition	62
5.4.2.3.3	Ready transition	62
5.4.2.3.4	Operation timeout	62
5.4.2.3.5	Physical Interface check	62
5.4.2.3.6	Slave-Initiated reset	62
5.4.2.3.7	Environmental error	62
5.4.2.3.8	Power fail alert	62
5.4.2.3.9	Data Check (on raw data)	62
5.4.2.3.10	Uncorrectable Data Check (on perfect data)	62
5.4.2.3.11	Fatal error	62
5.4.2.3.12	Hardware write protected	63
5.4.2.3.13	Queue full	63
5.4.2.3.14	Command failure	63
5.4.2.3.15	Read access violation	63
5.4.2.3.16	Write access violation	63
5.4.2.3.17	Data overrun	63
5.4.2.3.18	Reallocation space exhausted	63
5.4.2.3.19	End of media detected	63
5.4.2.3.20	End of extent detected	63
5.4.2.3.21	Unexpected master action	63
5.4.2.3.22	Error Log full	64
5.4.2.3.23	Defect Directory full	64
5.4.2.3.24	Logical link failure	64
5.4.2.3.25	Position lost	64
5.4.2.4	Command Exception (ID='x7')	64
5.4.2.4.1	Invalid Packet length	65
5.4.2.4.2	Invalid Command Reference Number	65
5.4.2.4.3	Invalid Slave Address	65
5.4.2.4.4	Invalid Facility Address	65
5.4.2.4.5	Invalid selection address	65
5.4.2.4.6	Invalid Opcode	65
5.4.2.4.7	Invalid Modifier	65
5.4.2.4.8	Invalid Extent	65
5.4.2.4.9	Out of context	65
5.4.2.4.10	Invalid parameter(s)	65
5.4.2.4.11	Missing parameter(s)	66
5.4.2.4.12	Reserved value not equal to zero	66
5.4.2.4.13	Invalid combination	66
5.4.2.4.14	Not at initial position	66
5.4.2.5	Command Aborted (ID='x8')	66
5.4.2.5.1	Command Aborted	66
5.4.2.5.2	Command sequence terminated	66
5.4.2.5.3	Unexecuted command from terminated sequence	67
5.4.2.5.4	Command chain terminated	67
5.4.2.5.5	Unexecuted command from terminated chain	67
5.4.2.5.6	Command order terminated	67
5.4.2.5.7	Unexecuted command from terminated order	67
5.4.2.6	Conditional Success (ID='x9')	68
5.4.2.6.1	Logging data appended	68
5.4.2.6.2	ABORT received: No Command Active	69
5.4.2.6.3	ABORT received: Status Pending	69
5.4.2.6.4	ABORT received: Not Operational	69
5.4.2.6.5	Anticipated error	69

5.4.2.6.6	Anticipated data error	69
5.4.2.6.7	Reallocation required	69
5.4.2.6.8	Reallocation discontinuity	69
5.4.2.6.9	Defect Directory threshold exceeded	69
5.4.2.6.10	Error retry performed	69
5.4.2.6.11	Data retry performed	69
5.4.2.6.12	Motion retry performed	70
5.4.2.6.13	Data correction performed	70
5.4.2.6.14	Soft error	70
5.4.2.6.15	Release of an unreserved addressee	70
5.4.2.6.16	Request Diagnostic Control command	70
5.4.2.6.17	Error Log request	70
5.4.2.6.18	Non-Interchange volume	70
5.4.2.6.19	Retention required	70
5.4.2.6.20	End of Media Warning (EMW)	70
5.4.2.6.21	Statistics update requested	71
5.4.2.6.22	Parameter update requested	71
5.4.2.6.23	Asynchronous event occurrence	71
5.4.2.6.24	Master-Terminated transfer	71
5.4.2.7	Incomplete (ID='xA')	71
5.4.2.7.1	Command may be resumed	71
5.4.2.7.2	COPY source space empty	72
5.4.2.7.3	Response packet truncated	72
5.4.2.7.4	Select Subservient slave	72
5.4.2.7.5	Connect unsuccessful	72
5.4.2.7.6	Disconnect unsuccessful	72
5.4.2.7.7	Connect Identifier already assigned	72
5.4.2.7.8	Link not connected	72
5.4.2.7.9	Beginning of Media (BOM) detected	72
5.4.2.7.10	End of Media Warning (EMW)	72
5.4.2.7.11	End of extent detected	72
5.4.2.7.12	Block length difference	73
5.4.2.7.13	Unrecorded media	73
5.4.2.7.14	Data length difference	73
5.4.2.7.15	Block not found	73
5.4.2.8	Successful	73
5.4.2.9	Message/Microcode Exception (ID='x3')	73
5.4.2.9.1	Microcode Data not accepted	74
5.4.2.9.2	Request Master to IML Slave	74
5.4.2.9.3	Slave Unable to IML	74
5.4.2.9.4	Message	74
5.4.2.9.5	Microcode Execution error	74
5.4.2.9.6	Failure message	74
5.4.2.9.7	Port Disable pending	74
5.4.2.9.8	Port Response	74
5.4.2.9.9	Facility status	74
5.4.3	Extended substatus	75
5.5	Common parameters	75
5.5.1	Transfer Notification parameter (optional)	75
5.5.2	Command Extent parameter	76
5.5.2.1	Count	76
5.5.2.2	Data Address	76
5.5.3	Response Extent parameter	76
5.5.3.1	Residual Count	77
5.5.3.2	Data Address	77
5.5.4	Combination Command Extent parameter (optional)	77
5.5.4.1	Slave address	78
5.5.4.2	Facility address	78
5.5.4.3	Modifiers	78
5.5.4.4	Count	78

## ISO/IEC 9318-3 : 1990 (E)

5.5.4.5 Data Address .....	78
5.5.5 Combination Response Extent parameter (optional) .....	79
5.5.5.1 Slave address .....	79
5.5.5.2 Facility address .....	79
5.5.5.3 Modifiers .....	79
5.5.5.4 Residual Count .....	79
5.5.5.5 Data Address .....	79
5.5.5.6 Major Status .....	80
5.5.5.7 Substatus .....	80
5.5.6 Access Key parameter (optional) .....	80
5.5.7 Reserved .....	80
5.5.8 Reserved .....	80
5.5.9 Invalid Parm parameter (optional) .....	80
5.5.9.1 Displacement of parameter in error .....	80
5.5.9.2 Displacement of field in error .....	81
5.5.10 Missing Parm parameter (optional) .....	81
5.5.11 Data Address parameter (optional) .....	81
5.5.12 Block Size parameter (optional) .....	82
5.5.13 Transfer .....	82
5.5.13.1 Verify .....	82
5.5.13.2 Volume .....	83
5.5.13.3 Certify .....	83
5.5.13.4 Stop on Data Error .....	83
5.5.13.5 Compare .....	83
5.5.13.6 Threshold .....	83
5.5.13.7 Suppress Incorrect Length Indication .....	84
5.5.13.8 Response conditions (octet 3 bits 7-4) .....	84
5.5.14 Encapsulation parameter (optional) .....	84
5.5.15 Partition parameter (optional) .....	84
5.5.15.1 Disk Partitions .....	85
5.5.15.2 Tape Partitions .....	85
5.5.16 Stop On Discontinuity parameter (optional) .....	87
5.5.16.1 Cylinders .....	87
5.5.16.2 Tracks .....	87
5.5.16.3 Access boundary .....	87
5.5.16.4 Discontiguous Defect reallocation .....	87
5.5.16.5 Bands .....	87
5.5.16.6 Time .....	87
5.5.16.7 Discontinuity Time .....	87
5.5.17 Imbedded Data parameter (optional) .....	88
6 Control commands .....	89
6.1 NOP .....	89
6.1.1 Command packet .....	89
6.1.2 Response packet .....	89
6.1.3 Description .....	89
6.2 FACILITY OPERATION .....	90
6.2.1 Command packet .....	90
6.2.2 Response packet .....	90
6.2.3 Description .....	90
6.2.4 Parameter 3D - Encapsulation parameter .....	90
6.3 ATTRIBUTES .....	91
6.3.1 Command packet .....	91
6.3.2 Response packet .....	91
6.3.3 Description .....	91
6.3.4 Parameters .....	93
6.3.4.1 Parameters 3A, 3E, 50 .....	93
6.3.4.1.1 Data Address (common) parameter .....	94
6.3.4.1.2 Partition (common) parameter .....	94
6.3.4.1.3 Vendor ID parameter .....	94



6.3.4.2 Parameters 51-58 .....	95
6.3.4.2.1 Size of Disk DataBlocks parameter .....	95
6.3.4.2.2 Size of Disk PhysicalBlocks parameter .....	95
6.3.4.2.3 Total Number of Disk DataBlocks parameter .....	96
6.3.4.2.4 Total Number of Disk PhysicalBlocks parameter .....	96
6.3.4.2.5 DataBlock Sizes Supported parameter .....	96
6.3.4.2.6 PhysicalBlock Sizes Supported parameter .....	96
6.3.4.2.7 Size of Physical Groups parameter .....	96
6.3.4.2.8 Hard Disk Formats parameter .....	96
6.3.4.3 Parameters 59-5A .....	97
6.3.4.3.1 Attributes Table conditions parameter .....	97
6.3.4.3.2 Pad with Fill Characters parameter .....	97
6.3.4.4 Parameters 5B-5D .....	98
6.3.4.4.1 Disk Partition Definition parameter .....	98
6.3.4.4.2 Synonym Definition parameter .....	98
6.3.4.4.3 Alias Definition parameter .....	98
6.3.4.5 Parameters 5E-5F .....	99
6.3.4.5.1 Multi-Port Characteristics parameter .....	99
6.3.4.5.2 Physical Disk Configuration parameter .....	99
6.3.4.6 Parameters 60-63 .....	100
6.3.4.6.1 DataBlock Interleave parameter .....	100
6.3.4.6.2 Transfer Rate parameter .....	101
6.3.4.6.3 PhysicalBlock Performance Characteristics Supported parameter .....	101
6.3.4.6.4 Current PhysicalBlock Performance Settings parameter .....	101
6.3.4.7 Parameters 64-65 .....	102
6.3.4.7.1 Physical Interface Attributes parameter .....	102
6.3.4.7.2 Addressee Configuration parameter .....	102
6.3.4.8 Parameter 66 - Slave Configuration (bit significant) .....	103
6.3.4.9 Parameter 67 - Slave Configuration (fields) .....	105
6.3.4.10 Parameter 68 - Facilities Attached to Slave .....	106
6.3.4.11 Parameters 69-6A .....	108
6.3.4.11.1 Parameter 69 .....	108
6.3.4.11.2 Command Supported parameter .....	108
6.3.4.12 Parameter 6B - Masks of octets supported .....	109
6.3.4.13 Parameters 6C-6D .....	110
6.3.4.13.1 Request Parm parameter .....	110
6.3.4.13.2 Parm Length parameter .....	111
6.3.4.14 Parameter 6E - Slave Reconfiguration (bit-significant) .....	111
6.3.4.15 Parameter 6F - .....	113
6.4 REPORT ADDRESSEE STATUS .....	114
6.4.1 Command packet .....	114
6.4.2 Response packet .....	114
6.4.3 Description .....	114
6.4.4 Parameters 50-53 .....	115
6.4.4.1 Port Mask parameter .....	115
6.4.4.2 Condition parameter .....	116
6.4.4.3 Media Status parameter .....	116
6.4.4.4 Vendor Unique Status parameter .....	116
6.5 PORT ADDRESS .....	116
6.5.1 Command packet .....	116
6.5.2 Response packet .....	116
6.5.3 Description .....	116
6.6 PATH CONTROL .....	118
6.6.1 Command packet .....	118
6.6.2 Response packet .....	118
6.6.3 Description .....	118
6.6.4 Parameters 50-51 .....	119
6.6.4.1 Port Mask parameter .....	119
6.6.4.2 Path Control Mask parameter .....	119
6.7 ATTENTION CONTROL .....	119

## ISO/IEC 9318-3 : 1990 (E)

6.7.1 Command packet	119
6.7.2 Response packet	120
6.7.3 Description	120
6.7.4 Interrupts Mask parameter	120
6.8 OPERATING MODE	121
6.8.1 Command packet	121
6.8.2 Response packet	121
6.8.3 Description	121
6.8.4 Parameters 3E, 50-51	122
6.8.4.1 Partition (common) parameter	122
6.8.4.2 Response Conditions parameter	122
6.8.4.3 Disk Modes parameter	122
6.9 ABORT	123
6.9.1 Command packet	123
6.9.2 Response packet	123
6.9.3 Description	123
6.9.4 Parameters 50-54	124
6.9.4.1 Command Reference Number parameter	124
6.9.4.2 Alternate Port Commands parameter	124
6.9.4.3 Facility Address parameter	125
6.9.4.4 Alternate Port parameter	125
6.9.4.5 Facility Reset parameter	125
6.10 ACCESS PERMITS	125
6.10.1 Command packet	125
6.10.2 Response packet	126
6.10.3 Description	126
6.10.4 Parameters 31-32, 35, 3A, 3E, 50-51	127
6.10.4.1 Command Extent (common) parameter	127
6.10.4.2 Response Extent (common) parameter	128
6.10.4.3 Access Key (common) parameter	128
6.10.4.4 Data Address (common) parameter	128
6.10.4.5 Partition (common) parameter	128
6.10.4.6 Port Mask parameter	128
6.10.4.7 Access Protection parameter - protection modifiers	128
6.11 RESUME	129
6.11.1 Command packet	129
6.11.2 Response packet	129
6.11.3 Description	129
6.11.4 Parameters 50-51	130
6.11.4.1 Command Reference Number parameter	130
6.11.4.2 Alternate Port Commands parameter	130
6.12 PORT RESPONSE	130
6.12.1 Command packet	130
6.12.2 Response packet	131
6.12.3 Description	131
6.12.4 Parameters 50-51	131
6.12.4.1 Port Mask parameter	131
6.12.4.2 Response Information Transfer parameter	131
6.13 ANTICIPATED ACTION	131
6.13.1 Command packet	131
6.13.2 Response packet	132
6.13.3 Description	132
6.13.4 Parameters 3D, 50	132
6.13.4.1 Expected Conditions parameter	132
6.13.4.2 Encapsulation parameter	132
6.14 OPERATOR DISPLAY	133
6.14.1 Command packet	133
6.14.2 Response packet	133
6.14.3 Description	133
6.14.4 Parameters 50-53	134

6.14.4.1	Identifier parameter	135
6.14.4.2	Length parameter	135
6.14.4.3	Mode parameter	135
6.14.4.4	Timing parameter	136
6.14.4.5	Normal message parameter	137
6.14.4.6	Alternate message parameter	137
7	Position commands	138
7.1	Reserved	138
7.2	POSITION CONTROL	138
7.2.1	Command packet	138
7.2.2	Response packet	138
7.2.3	Description	138
7.2.4	Parameters 31, 32, 35, 3A, 3E	139
7.2.4.1	Command Extent (common) parameter	139
7.2.4.2	Response Extent (common) parameter	139
7.2.4.3	Access Key (common) parameter	139
7.2.4.4	Data Address (common) parameter	139
7.2.4.5	Partition (common) parameter	139
7.3	REPORT POSITION	140
7.3.1	Command packet	140
7.3.2	Response packet	140
7.3.3	Description	140
7.3.4	Parameters 32, 35, 3A, 3E	140
7.3.4.1	Response Extent (common) parameter	140
7.3.4.2	Access Key (common) parameter	141
7.3.4.3	Data Address (common) parameter	141
7.3.4.4	Partition (common) parameter	141
7.4	Reserved	141
7.5	REPORT DISCONTINUITY	141
7.5.1	Command packet	141
7.5.2	Response packet	141
7.5.3	Description	141
7.5.4	Parameters 31-32, 35, 3A, 3E-3F, 6C-6D	142
7.5.4.1	Command Extent (common) parameter	142
7.5.4.2	Response Extent (common) parameter	142
7.5.4.3	Access Key (common) parameter	143
7.5.4.4	Data Address (common) parameter	143
7.5.4.5	Partition (common) parameter	143
7.5.4.6	Stop on Discontinuity (common) parameter	143
7.5.4.7	Request Parm parameter	143
7.5.4.8	Parm Length parameter	143
8	Transfer commands	144
8.1	READ	144
8.1.1	Command packet	144
8.1.2	Response packet	144
8.1.3	Description	144
8.1.4	Parameters	146
8.1.4.1	Parameters 31-32, 35, 3A, 3C, 3E-3F	146
8.1.4.1.1	Command Extent (common) parameter	146
8.1.4.1.2	Response Extent (common) parameter	146
8.1.4.1.3	Access Key (common) parameter	146
8.1.4.1.4	Data Address (common) parameter	146
8.1.4.1.5	Transfer (common) parameter	146
8.1.4.1.6	Partition (common) parameter	147
8.1.4.1.7	Stop on Discontinuity (common) parameter	147
8.1.4.2	Parameters 50-53	147
8.1.4.2.1	Skip Mask parameter	147
8.1.4.2.2	Information Transfer Size Override parameter	147

ISO/IEC 9318-3 : 1990 (E)

8.1.4.2.3 Master Termination Permitted parameter	148
8.1.4.2.4 Boundary Gather parameter	148
8.2 READ RAW DATA	148
8.2.1 Command packet	148
8.2.2 Response packet	148
8.2.3 Description	148
8.2.4 Parameters 31-32, 35, 3A, 3C, 3E-3F	149
8.2.4.1 Command Extent (common) parameter	149
8.2.4.2 Response Extent (common) parameter	149
8.2.4.3 Access Key (common) parameter	149
8.2.4.4 Data Address (common) parameter	149
8.2.4.5 Transfer (common) parameter	149
8.2.4.6 Partition (common) parameter	149
8.2.4.7 Stop on Discontinuity (common) parameter	150
8.3 READ REPLICATED DATA	150
8.3.1 Command packet	150
8.3.2 Response packet	150
8.3.3 Description	150
8.3.4 Parameters 31-32, 35, 3A, 3C, 3E, 50	151
8.3.4.1 Command Extent (common) parameter	151
8.3.4.2 Response Extent (common) parameter	151
8.3.4.3 Access Key (common) parameter	151
8.3.4.4 Data Address (common) parameter	151
8.3.4.5 Transfer (common) parameter	151
8.3.4.6 Partition (common) parameter	151
8.3.4.7 Range Count parameter	151
8.4 SEARCH	152
8.4.1 Command packet	152
8.4.2 Response packet	152
8.4.3 Description	152
8.4.4 Parameters	153
8.4.4.1 Parameters 02, 31-32, 35, 3A, 3E ISO/IEC 9318-3:1990	153
8.4.4.1.1 Continuation of Preceding (common) parameter	153
8.4.4.1.2 Command Extent (common) parameter	153
8.4.4.1.3 Response Extent (common) parameter	153
8.4.4.1.4 Access Key (common) parameter	154
8.4.4.1.5 Data Address (common) parameter	154
8.4.4.1.6 Partition (common) parameter	154
8.4.4.2 Parameter 50 - Set String Search parameter	154
8.4.4.3 Parameter 51 - Boolean Operator parameter	155
8.4.4.4 Parameter 52 - Set Multiple Key Search parameter	155
8.4.4.5 Parameter 53 - Report Search parameter	156
8.5 WRITE	157
8.5.1 Command packet	157
8.5.2 Response packet	157
8.5.3 Description	157
8.5.4 Parameters 31-32, 35, 3A, 3C, 3E-3F, 50-52	158
8.5.4.1 Command Extent (common) parameter	158
8.5.4.2 Response Extent (common) parameter	158
8.5.4.3 Access Key (common) parameter	158
8.5.4.4 Data Address (common) parameter	158
8.5.4.5 Transfer (common) parameter	159
8.5.4.6 Partition (common) parameter	159
8.5.4.7 Stop on Discontinuity (common) parameter	159
8.5.4.8 Skip Mask parameter	159
8.5.4.9 Information Transfer Size Override parameter	159
8.5.4.10 Master Termination Permitted parameter	159
8.6 WRITE PATTERN	159
8.6.1 Command packet	159
8.6.2 Response packet	159

STANDARD PREVIEW  
(standards.itech.ai)

8.6.3	Description	160
8.6.4	Parameters 02, 31-32, 35, 3A, 3C, 3E, 50, 6C	160
8.6.4.1	Continuation of Preceding (common) parameter	160
8.6.4.2	Command Extent (common) parameter	160
8.6.4.3	Response Extent (common) parameter	160
8.6.4.4	Access Key (common) parameter	160
8.6.4.5	Data Address (common) parameter	161
8.6.4.6	Transfer (common) parameter	161
8.6.4.7	Partition (common) parameter	161
8.6.4.8	Pattern parameter	161
8.6.4.9	Request Parm parameter	161
8.7	FORMAT	161
8.7.1	Command packet	161
8.7.2	Response packet	161
8.7.3	Description	162
8.7.3.1	Interleave considerations	163
8.7.3.2	Defect List considerations	163
8.7.4	Parameters	164
8.7.4.1	Parameters 31-32, 35, 3A-3C, 3E-3F	164
8.7.4.1.1	Command Extent (common) parameter	164
8.7.4.1.2	Response Extent (common) parameter	164
8.7.4.1.3	Access Key (common) parameter	165
8.7.4.1.4	Data Address (common) parameter	165
8.7.4.1.5	Block Size (common) parameter	165
8.7.4.1.6	Transfer (common) parameter	165
8.7.4.1.7	Partition (common) parameter	165
8.7.4.1.8	Stop On Discontinuity (common) parameter	165
8.7.4.2	Parameters 50-54	166
8.7.4.2.1	Number of PhysicalBlocks per Track parameter	166
8.7.4.2.2	PhysicalBlock Interleave Factors parameter	166
8.7.4.2.3	PhysicalBlock Interleave Table parameter	167
8.7.4.2.4	Transfer Rate parameter	167
8.7.4.2.5	DataBlock Interleave parameter	167
8.7.4.3	Parameters 56-58	168
8.7.4.3.1	Track Defects List parameter	168
8.7.4.3.2	Sector Defects List parameter	168
8.7.4.3.3	Hard Disk Formats parameter	168
8.7.4.4	Parameters 5A, 6C	169
8.7.4.4.1	Cell Defects List parameter	169
8.7.4.4.2	Request Parm parameter	169
9	Combination commands	170
9.1	COPY	170
9.1.1	Command packet	170
9.1.2	Response packet	170
9.1.3	Description	170
9.1.4	Parameters 33-35, 3A, 3C, 3E, 50	172
9.1.4.1	Combination Command Extent (common) parameter	172
9.1.4.2	Combination Response Extent (common) parameter	172
9.1.4.3	Access Key (common) parameter	172
9.1.4.4	Data Address (common) parameter	173
9.1.4.5	Transfer (common) parameter	173
9.1.4.6	Partition (common) parameter	173
9.1.4.7	Extended Modifiers parameter	173
9.2	COMPARE SLAVE DATA	174
9.2.1	Command packet	174
9.2.2	Response packet	174
9.2.3	Description	174
9.2.4	Parameters 33-35, 3A, 3E, 50	175

## ISO/IEC 9318-3 : 1990 (E)

9.2.4.1	Combination Command Extent (common) parameter	175
9.2.4.2	Combination Response Extent (common) parameter	175
9.2.4.3	Access Key (common) parameter	175
9.2.4.4	Data Address (common) parameter	175
9.2.4.5	Partition (common) parameter	176
9.2.4.6	Extended Modifiers parameter	176
9.3	COMPARE DATA	176
9.3.1	Command packet	176
9.3.2	Response packet	176
9.3.3	Description	176
9.3.4	Parameters 31-35, 3A, 3E, 50	177
9.3.4.1	Command Extent (common) parameter	177
9.3.4.2	Response Extent (common) parameter	177
9.3.4.3	Combination Command Extent (common) parameter	177
9.3.4.4	Combination Response Extent (common) parameter	178
9.3.4.5	Access Key (common) parameter	178
9.3.4.6	Data Address (common) parameter	178
9.3.4.7	Partition (common) parameter	178
9.3.4.8	Extended Modifiers parameter	178
9.4	REALLOCATE	178
9.4.1	Command packet	178
9.4.2	Response packet	178
9.4.3	Description	178
9.4.4	Parameters	179
9.4.4.1	Parameters 31-32, 35, 3A, 3E	179
9.4.4.1.1	Command Extent (common) parameter	180
9.4.4.1.2	Response Extent (common) parameter	180
9.4.4.1.3	Access Key (common) parameter	180
9.4.4.1.4	Data Address (common) parameter	180
9.4.4.1.5	Partition (common) parameter	180
9.4.4.2	Parameters 50, 55	180
9.4.4.2.1	Defect parameter	180
9.4.4.2.2	Defective DataBlock parameter	181
9.4.4.2.3	Defective lists management	181
9.5	ALLOCATE RESTORE	181
9.5.1	Command packet	181
9.5.2	Response packet	181
9.5.3	Description	182
9.5.4	Parameters	182
9.5.4.1	Parameters 31-32, 35, 3A, 3E	182
9.5.4.1.1	Command Extent (common) parameter	182
9.5.4.1.2	Response Extent (common) parameter	182
9.5.4.1.3	Access Key (common) parameter	183
9.5.4.1.4	Data Address (common) parameter	183
9.5.4.1.5	Partition (common) parameter	183
9.5.4.2	Parameters 50, 55	183
9.5.4.2.1	Defect parameter	183
9.5.4.2.2	Defective DataBlock parameter	183
9.5.4.2.3	Defective lists management	183
9.6	SHADOW READ	184
9.6.1	Command packet	184
9.6.2	Response packet	184
9.6.3	Description	184
9.6.4	Parameters 33-35, 3A, 3C, 3E, 51, 52	185
9.6.4.1	Combination Command Extent (common) parameter	185
9.6.4.2	Combination Response Extent (common) parameter	185
9.6.4.3	Access Key (common) parameter	185
9.6.4.4	Data Address (common) parameter	185
9.6.4.5	Transfer (common) parameter	186
9.6.4.6	Partition (common) parameter	186

9.6.4.7	Information Transfer Size Override parameter	186
9.6.4.8	Master Termination Permitted parameter	186
9.7	SHADOW WRITE	186
9.7.1	Command packet	186
9.7.2	Response packet	186
9.7.3	Description	186
9.7.4	Parameters 33-35, 3A, 3C, 3E, 51, 52	187
9.7.4.1	Combination Command Extent (common) parameter	187
9.7.4.2	Combination Response Extent (common) parameter	187
9.7.4.3	Access Key (common) parameter	188
9.7.4.4	Data Address (common) parameter	188
9.7.4.5	Transfer (common) parameter	188
9.7.4.6	Partition (common) parameter	188
9.7.4.7	Information Transfer Size Override parameter	188
9.7.4.8	Master Termination Permitted parameter	188
9.8	SHADOW RESTORE	188
9.8.1	Command packet	188
9.8.2	Response packet	188
9.8.3	Description	189
9.8.4	Parameters 33-35, 3A, 3C, 3E	189
9.8.4.1	Combination Command Extent (common) parameter	189
9.8.4.2	Combination Response Extent (common) parameter	189
9.8.4.3	Access Key (common) parameter	190
9.8.4.4	Data Address (common) parameter	190
9.8.4.5	Transfer (common) parameter	190
9.8.4.6	Partition (common) parameter	190
<b>ITeH STANDARD PREVIEW</b>		
10	Other Transfer commands	191
10.1	READ VERIFY	191
10.1.1	Command packet	191
10.1.2	Response packet	191
10.1.3	Description	191
10.1.3.1	High Margins modifier	192
10.1.3.2	Volume modifier	192
10.1.4	Parameters 31-32, 35, 3A, 3C, 3E	192
10.1.4.1	Command Extent (common) parameter	192
10.1.4.2	Response Extent (common) parameter	192
10.1.4.3	Access Key (common) parameter	192
10.1.4.4	Data Address (common) parameter	192
10.1.4.5	Transfer (common) parameter	192
10.1.4.6	Partition (common) parameter	193
10.2	READ AT FIRST AVAILABLE DATA	193
10.2.1	Command packet	193
10.2.2	Response packet	193
10.2.3	Description	193
10.2.4	Parameters 31-32, 35, 3A, 3C, 3E-3F, 50-51	194
10.2.4.1	Command Extent (common) parameter	194
10.2.4.2	Response Extent (common) parameter	194
10.2.4.3	Access Key (common) parameter	194
10.2.4.4	Data Address (common) parameter	194
10.2.4.5	Transfer (common) parameter	195
10.2.4.6	Partition (common) parameter	195
10.2.4.7	Stop On Discontinuity parameter	195
10.2.4.8	Read at First Data parameter	195
10.2.4.9	Information Transfer Size Override parameter	195
10.3	READ FROM BUFFER	195
10.3.1	Command packet	195
10.3.2	Response packet	195
10.3.3	Description	196
10.3.4	Parameters 31-32, 35, 3A, 3C, 3E, 50	196