

CONTENTS

SECTION 1	INTRODUCTION	1
	1-1 About the Instruction Manual	1
	1-2 Introducing the FM Gradiometers	1
	1-3 Display Information	1
	1-4 Programming the Gradiometers	3
	1-5 Special Features	3
	1-6 Typical Specifications	5
SECTION 2	ASSEMBLY INSTRUCTIONS	5
	2-1 Unpacking	7
	2-2 Physical layout of the Gradiometer	8
	2-3 Battery Types	10
	(1) Rechargeable Ni-Cad Batteries	10
	(2) Primary Batteries	10
	2-4 Battery Installation and Replacement	10
	2-5 Assembling the Gradiometer for field use	12
	(1) FM18 and FM36 Gradiometers	12
	(2) FM9 Gradiometer	13
SECTION 3	OPERATING INSTRUCTIONS	15
	3-1 Introduction	15
	3-2 Switching on for the first time	15
	3-3 Keyboard Operations	16
	(1) Basic Key Functions	18
	(2) Logging Key Functions	21
	3-4 Digital Averaging Mode	26
	(1) Introduction	26
	(2) Operating Instructions	26
	(3) Performance	27
	3-5 Fluxgate Sensor alignment	29
	(1) Introduction	29
	(2) Precautions	29
	(3) Alignment and Balance Procedure	29
	3-6 External LOG Triggering	32
	(1) Introduction	32
	(2) Selection of External Trigger Type	32
	(3) External Distance Encoder	32
	3-7 Data Output to a computer	35
	3-8 Use of the Analogue Output	35
	(1) Introduction	35
	(2) Output to the DL10 Data Logger	35
	(3) Output to Chart Recorders	35

3-9	Charging the Battery Pack	36
(1)	Battery Low Warning	36
(2)	The Battery Charger	36
(3)	Charging Instructions	36
3-10	Care of the Instrument	38
SECTION 4	FIELD PROCEDURE	41
4-1	Introduction	41
4-2	Setting up the Gradiometer	41
(1)	Warm-up Time	41
(2)	Precautions	41
(3)	Sensor Alignment	42
4-3	Scanning	42
4-4	Planning a Detailed Survey	43
(1)	Area or Line Survey	43
(2)	Grid Size	44
(3)	Reading Interval	44
(4)	Traverse Pattern	45
(5)	Display Resolution	46
4-5	Laying out the Grid	47
4-6	Use of Survey Guide Lines	47
4-7	Setting up a Zero Reference Point	49
4-8	Doing an Area Survey	50
(1)	Basic Procedure	50
(2)	Dealing with Obstacles at the Grid Edge	52
(3)	Quiet sites - the use of Averaging Mode	53
(4)	Differences with the use of the FM9	54
4-9	Doing a Line Survey	54

APPENDIX A	RS232 INTERFACE	100
A-1	Introduction	100
A-2	Pin Connections	100
A-3	Data Format	101

APPENDIX B	DATA OUTPUT	102
B-1	Introduction	102
B-2	Reading Representation	102
B-3	Data Output Format	103
B-4	Receiving and Reconstructing the Data	103
(1)	Data Input	104
(2)	Data Reconstruction	105
B-5	Further Processing of the Data	106

APPENDIX C	ENCODER CIRCUIT	108
C-1	Introduction	108
C-2	Interface Details	108

APPENDIX D	SAMPLE TRIGGER ST1	110
	D-1 Introduction	110
	D-2 Assembly Instructions	111
	(1) Fitting the Mounting Bar	111
	(2) Carrying-case cut-out	112
	(3) Assembling for Field Use	112
	D-3 Operating Instructions	113
	(1) Switching on	113
	(2) ST1/Gradiometer settings	113
	(3) Doing the traverse	113
	D-4 Field Procedure	114
	D-5 Sampling Interval Selection	115
	D-6 Reproducibility	116
APPENDIX F	SURVEY GUIDE LINES	118
APPENDIX G	SURVEY SHEETS	120
APPENDIX H	INTERFERENCE	H-1
	H-1 Introduction	H-1
	H-2 Interference whilst Surveying	H-1
	H-3 Interference whilst Dumping Data	H-1
