

GDP-32^{II} Manual

Table of Contents

	<u>LABELS</u>		<u>LABELS</u>	
1. Introduction	<u>Introduction</u>		<u>RPIP</u>	
1.1 Warranty	2	8.1 Introduction	2	
1.2 Product Information	3	8.2 Program Operation	3	
2. Description Of The GDP-32^{II} Receiver	<u>Description</u>		<u>TDIP</u>	
2.1 Overview.....	2	9.1 Introduction	2	
2.2 Specifications.....	3	9.2 Program Operation	3	
2.3 GDP-32 ^{II} Case.....	8	9.3 Data Collection	7	
3. System Start Up	<u>Start Up</u>		9.4 Field Configurations	14
3.1 Initial Receiver Check.....	2			
3.2 Powering Up The GDP-32 ^{II}	4			
3.3 Shutting Down The GDP-32 ^{II}	5			
3.4 Charging Batteries.....	6			
4. Quick Start	<u>Quick Start</u>			
4.1 Introduction.....	2			
4.2 Receiver Start-Up.....	3			
4.3 Enter Survey Parameters.....	5			
4.4 Calibration.....	7			
4.5 System Check.....	11			
4.6 Synchronization	13			
4.7 Acquire Field Data	15			
4.8 Check Data In The Data Cache.....	15			
4.9 Data Transfer To A Computer	16			
5. Accessing Programs	<u>Access</u>		10. CR / HACSAMT	<u>CR</u>
5.1 The Main Program Menu	2		10.1 Introduction	2
5.2 Field Survey Program Screens	5		10.2 CR Program Operation	3
5.3 Scaling	13		10.3 Gathering Data.....	10
6. Receiver Setup	<u>Setup</u>		10.4 A Note On Phase	16
6.1 Calibration.....	2		10.5 A Note On Scaling.....	16
6.2 Synchronizing Timing Circuits	14		10.6 3-Point Decoupling.....	17
6.3 Measuring Contact Resistance	27		10.7 Sample Data Blocks.....	18
6.4 Setting The Powerline Notch Filter	28		10.8 Notes On Field Configurations	20
6.5 Gains	29		10.9 Sample Menus For 'LABROX' Option	21
6.6 Bits Of Resolution.....	38		10.10 Sample Menus For 'HACSAMT' Option	24
7. Handling Data	<u>Data</u>		10.11 Field Configurations	26
7.1 Monitoring Analog Signals	2			
7.2 Viewing Data	3			
7.3 Accessing Caches.....	7			
7.4 Initializing Caches.....	10			
7.5 Configuring Ports.....	11			
7.6 Outputting Data.....	13			
7.7 Input Antenna Calibration Data	16			
7.8 Up-Loading Program Files Via The LAN.....	18			
7.9 Connecting the GDP-32 ^{II} to a Laptop via Network.	19			
			11. CSAMT	<u>CSAMT</u>
			11.1 Introduction	2
			11.2 Fixed Function Keys.....	3
			11.3 CSAMT Program Operation.....	4
			11.4 Gathering Data.....	11
			11.5 A Note On Variable A-Spacing	16
			11.6 A Note On Phase	16
			11.7 A Note On Scaling	16
			11.8 Restrictions	17
			11.9 Sample Data Blocks.....	21
			11.10 Notes On Field Configurations	22
			11.11 Magnetic Coil Connections	22
			11.12 Field Configurations	23
			11.13 Magnetic Sensors Field-Check	25

	LABELS		LABELS
12. TEM	TEM		Mathematics
12.1 Introduction.....	2	15.1 Standard Error Of The Mean (SEM)	2
12.2 Fixed Function Keys.....	3	15.2 3-Point Decoupling.....	3
12.3 TEM Program Operation	4	15.3 A Note On Resistivity Calculations.....	4
12.4 Powerline Noise Rejection.....	12	15.4 Resistivity Calculations	4
12.5 Gathering Data	13	15.5 Useful CSAMT Equations	11
12.6 A Note On Scaling	17	15.6 Useful TEM Equations	12
12.7 Sample Rates And Antialias Filter Delays.....	18		
12.8 TEM Window Centers For Zero Delay.....	19		
12.9 Window Centers And Widths	20		
12.10 Sample Data Blocks	21		
12.11 Field Setups and Magnetic Antennas	22		
12.12 Estimating Ramp-Off Time.....	22		
12.13 TEM Receiver / Transmitter Arrays.....	23		
12.14 First Window Time Determination	24		
12.15 Field Configurations	25		
12.16 Equal-Interval Mode TEM.....	30		
12.17 Method To Field-Check Magnetic Sensors.....	32		
12.18 The NanoTEM System.....	33		
12.19 NanoTEM Hookup Directions	34		
12.20 NT-32 Transmitter System.....	35		
12.21 NanoTEM Turnoff Times	38		
12.22 NanoTEM Field Data Cache.....	38		
12.23 NanoTEM Window Centers.....	41		
12.24 NanoTEM Sample Data	44		
12.25 The NanoTEM Calibrate Box	45		
12.26 NanoTEM Field Setup	49		
12.27 Equal-Interval Mode, NanoTEM	51		
13. MT / AMT	AMT		
13.1 Introduction.....	2		
13.2 Fixed Function Keys	3		
13.3 MT/AMT Program Operation	4		
13.4 Gathering Data	13		
13.5 A Note On Variable A-Spacing	17		
13.6 A Note On Phase.....	17		
13.7 A Note On Scaling	17		
13.8 Restrictions	18		
13.9 Notes On Field Configurations	23		
13.10 Cascade Decimation Overview	24		
13.11 Data Dump Utility.....	26		
13.12 Time Series File Format	26		
13.13 Time Schedule	28		
13.14 Field Configurations	33		
13.15 Method To Field-Check Magnetic Sensors.....	37		
14. Plotting Routines	Plot		
14.1 Introduction.....	2		
14.2 Summary Of Plots For Different Data Types.....	4		
14.3 Examples of Operation.....	5		
14.4 Error Messages.....	6		
15. Mathematical Algorithms			Mathematics
15.1 Standard Error Of The Mean (SEM)	2		
15.2 3-Point Decoupling.....	3		
15.3 A Note On Resistivity Calculations.....	4		
15.4 Resistivity Calculations	4		
15.5 Useful CSAMT Equations	11		
15.6 Useful TEM Equations	12		
16. GDP-32^{II} Design			Design
16.1 Basic Design Characteristics	2		
16.2 Receiver Layout.....	4		
16.3 Card-PC MPU Board.....	8		
16.4 Bd287 Front Panel Board	8		
16.5 Bd183 Analog Board	10		
16.6 The Calibration And Timing Board.....	18		
16.7 The Battery Compartment	23		
16.8 The Crystal Oscillator.....	23		
17. Maintenance And Trouble-Shooting			Maintenance
17.1 Board Functions And Diagnostics	2		
17.2 Handling Boards and EPROMs	14		
17.3 Digital Board Problems	16		
17.4 Analog Board Problems.....	16		
17.5 Battery And Power Problems	20		
17.6 Synchronization Problems	24		
17.7 Cold Weather Operation	28		
17.8 Pinouts For Connectors	29		
17.9 Error Messages	36		
18. GDP-32^{II} User's Notes			User's Notes
18.1 Use Of The Attenuator	2		
18.2 Recalibrate When Replacing Analog Cards	2		
18.3 Connecting Peripherals To The GDP-32 ^{II}	3		
18.4 Always Measure Contact Resistance – CRES	3		
18.5 XMT-32 Transmitter Controller Specifications.....	4		
18.6 Transmitter Control Interface	5		
18.7 Resistance of Standard Gauge Wire	6		
18.8 Setup Instructions for Loadbank LB2500.....	7		
18.9 Antenna Designations.....	8		
18.10 Serial Port Data Transfer Using HyperTerminal	9		
18.11 Local Area Network (LAN) Connection	10		
18.12 Black Screen When Resetting The GDP-32 ^{II}	10		
18.13 Observe Proper Turn-Off Procedure	10		
19. Fast Transient Electromagnetics			NanoTEM
19.1 The NanoTEM System	2		
19.2 NanoTEM Hookup Directions.....	3		
19.3 NT-32 Transmitter System	4		
19.4 NanoTEM Turnoff Times	7		
19.5 NanoTEM Field Data Cache	7		
19.6 NanoTEM Window Centers	10		
19.7 NanoTEM Sample Data.....	13		
19.8 The NanoTEM Calibrate Box	14		
19.9 NanoTEM Field Setup	18		
19.10 Equal-Interval Mode, NanoTEM	20		
19.11 Configuring Ports	22		
19.12 Outputting Data	24		