

V.3229/V.3229L Manual

Compliments of
ARC ELECTRONICS
800-926-0226 / 281-392-6333

<http://www.arcelect.com/>
arc@arcelect.com

Table of Contents
V.3229 / V.3229L

Chapter 1
Introduction

GENERAL	1-1
Data Rates	1-1
DESCRIPTION	1-1
Functional	1-1
AutoConfiguration	1-2
Standard and L Models	1-2
Standalone and Shelf Units	1-4
HOW TO USE THIS MANUAL	1-5
Option Selection	1-5
Quick Startup	1-5
Specifications	1-6
SECURITY	1-6

Chapter 2
Installation

GENERAL	2-1
SITE SELECTION	2-1
Receipt Inspection	2-1
Tools Required	2-1
Strap Inspection	2-1
ELECTRICAL INSTALLATION	2-1
AC Power Connection	2-2
DC Power Input Option	2-2
DTE CONNECTION	2-2
TELEPHONE LINE CONNECTION	2-6
PSTN Connection	2-6
Permissive	2-6
Programmable	2-6
Leased Line Connection	2-8

Chapter 3
Option Selection

GENERAL	3-1
STRAP OPTION SELECTION	3-1
Removing Cover	3-2
Board Identification	3-3
Setting Straps	3-6
HARDWARE STRAPS	3-6
Tip and Ring Polarity	3-6
Ground Strap	3-7
QM Disabled	3-7
QM Normal / Inverted	3-7

Chapter 3 continued	LCD OPTION SELECTION	3-8
	MAIN MENU	3-8
	Menu Sequence	3-8
	SELECTING OPTIONS	3-13
	Main Menu	3-14
	Submenu	3-14
	Submenu Item	3-15
	Item Option	3-16
	Selecting the Option	3-16
Chapter 4 Operation	GENERAL	4-1
	CONTROLS AND INDICATORS	4-1
	LED DESCRIPTIONS	4-1
	Terminal Ready <i>OR</i>	4-1
	Quality Monitor	4-1
	Request to Send	4-1
	Clear to Send	4-1
	Carrier Detect	4-1
	Received Data	4-2
	Transmit Data	4-2
	TALK / DATA	4-2
	POWERUP	4-2
	Quick Startup Procedure	4-2
	Manual Dialing	4-2
	Manual Answering	4-3
	Autodialing from the Front Panel	4-3
	AT Command Dialing	4-3
	Software Packages Communication	4-3
	ERROR CONTROL	4-4
	FLOW CONTROL	4-4
	AUTOBAUD	4-4
	2 / 4 WIRE OPERATION	4-4
	4-Wire Operation	4-4
	2-Wire Operation	4-5
	CONFIGURATION PROFILES	4-6
	Active Profile	4-6
	Stored Profile	4-6
	Factory Profile	4-6
	REMOTE CONFIGURATION	4-7
	Remote Configuration Security	4-7
	SECURITY OPERATION	4-8
	Operating without Security	4-8
	Operating with Security	4-8

Chapter 4
continued

	Remote Operation	4-8
	Local Operation	4-9
	Passwords	4-9
	LCD Indication Security	4-9
	Restrictions in Security Operation	4-10
	AUTOCALLBACK SECURITY	4-10
	DIAL BACKUP	4-10
	AUTO RATE RENEGOTIATION	4-11
	PLACING A CALL	4-12
	Using a Standard Telephone	4-12
	Autodial from Front Panel	4-13
	Autodial with the AT Command Set	4-13
	ANSWERING A CALL	4-13
	Autosanswer	4-13
	Manual Answer	4-13
	ENDING A CALL	4-13
	V.32 Cleardown	4-15
Chapter 5 Asynchronous Operating Commands	GENERAL	5-1
	COMMAND CATEGORIES	5-1
	OPERATION MODES	5-1
	Offline Command Mode	5-1
	Online Command Mode	5-1
	Data Mode	5-2
	SENDING COMMANDS TO THE MODEM	5-2
	Creating a Command Statement	5-2
	Autobaud	5-3
	Guidelines for Creating Command Statements	5-3
	Monitor Display	5-3
	Command Buffer	5-4
	Backspace Key	5-4
	Repeating a Command	5-4
	Numbered Commands	5-5
	Group Commands	5-5
	RESPONSE COMMANDS	5-6
	Digit / Word Selection	5-6
	Response Displays	5-6
	Call Progress and Connect Speed Displays	5-7
	Number Code Application	5-9
	Response Number Codes / Messages	5-9
	DIAL COMMANDS	5-12
	Dialing	5-12

Chapter 5
continued

Tone Dialing	5-13
Pulse Dialing	5-13
Insert Long Pause	5-13
Wait for Second Dial Tone	5-13
Hook Flash	5-13
Switching to Answer Mode after Dialing	5-14
Remaining in Command Mode	5-14
Wait for 5 Seconds of Silence	5-14
Dialing a Stored Command Line	5-15
Telephone	5-15
Autodial Number Location	5-15
Voice Calls	5-15
Switching from Voice to Data	5-15
ANSWERING A CALL	5-16
Manual Answer	5-16
AT Command Answer	5-16
Autoanswer	5-16
TERMINAL INTERFACE COMMANDS	5-17
Data Carrier Detect	5-17
Data Set Ready	5-17
Request to Send / Clear to Send	5-19
DTE Controlled Fallback Rate	5-20
TEST COMMANDS	5-21
DTE Controlled Remote Digital Loopback	5-22
DTE Controlled Local Analog Loopback	5-22
GENERAL COMMANDS	5-23
Changing from Data Mode to Command Mode	5-23
Local Character Echo	5-23
Online State Character Echo	5-24
Hanging Up	5-24
EPROM Check	5-24
Speaker Volume	5-24
Speaker Control	5-25
Return Online	5-25
Long Space Disconnect	5-25
Guard Tones	5-26
Dial / Leased Line	5-26
Asynchronous / Synchronous Mode Selection	5-26
Make / Break Dial Pulse Ratio	5-28
DCE Speed	5-28

Chapter 5
continued

Disconnect Buffer Delay	5-29
Auto Retrain	5-29
Auto Rate Renegotiation	5-30
Product Revision Level	5-30
Product Serial Number	5-30
Permissive / Programmable	5-30
Dial Backup	5-31
V.32 Fast Train	5-31
Return to Leased Line from Dial Backup	5-31
Line Current Disconnect	5-32
Manual Dial Backup	5-32
Disable AT Command Set	5-32
Answer / Originate	5-33
CONFIGURATION COMMANDS	5-34
Storing a Configuration	5-34
AutoConfigure Commands	5-35
Powerup Option Set	5-35
Load Factory Options	5-35
Reset to Stored Configuration	5-36
Storing a Telephone Command Line	5-36
Retaining / Restoring Options	5-38
REMOTE CONFIGURATION	5-38
Remote Security Code	5-38
Entering Remote Configuration	5-39
SECURITY COMMANDS	5-40
Set Password	5-40
Changing a Password	5-40
Deleting a Password	5-40
Security Reset	5-40
Disabling Security	5-40
Security Status	5-40
Enabling Security	5-40
PROTOCOL COMMANDS	5-41
Serial Port (DTE) bps Adjust	5-41
V.42 Optional Detection Phase	5-42
Operating Mode	5-42
Auto-Reliable Fallback Character	5-43
Protocol Result Codes	5-43
Serial Port Flow Control	5-44
XON/XOFF Pass Through	5-45
Data Link Flow Control	5-46
Break Control	5-46

Chapter 5
continued

Inactivity Timer	5-48
Maximum Reliable Block Size	5-49
Transmit Break / Set Break Length	5-49
Set Auto-Reliable Buffer	5-50
V.42b Data Compression	5-50
Originate MNP Link	5-50
Accept an MNP Link	5-51
Switch from Normal to MNP	5-51
Switch from MNP to Normal	5-51

Chapter 6
Status Registers

S-REGISTERS	6-1
S-REGISTER OPERATION	6-4
Changing Register Values	6-4
Individual Bit Command	6-5
Autoanswer S0	6-6
Ring Count S1	6-6
Escape Character S2	6-6
End-of-Line Character S3	6-6
Line Feed Character S4	6-6
Backspace Character S5	6-6
Pause Before Dialing S6	6-7
Pause for Ringback and Carrier Detection / Wait for 2nd Dial Tone S7	6-7
Pause Interval for Comma S8	6-7
Carrier Detect Time S9	6-7
Lost Carrier Detect Time S10	6-7
DTMF Tone Duration S11	6-7
Escape Sequence Pause S12	6-8
S13	6-8
Bit Mapped S14	6-9
S15	6-9
System Tests S16	6-10
S17	6-10
Test Timeout S18	6-10
S19, 20	6-10
Bit Mapped S21	6-11
Bit Mapped S22	6-12
Bit Mapped S23	6-12
S24	6-12
DTR State Recognition S25	6-13
RTS/CTS Delay S26	6-13
Bit Mapped S27	6-13
Lookback Timer S28	6-13

Chapter 6
continued

Bit Mapped S29	6-14
Bit Mapped S30	6-14
4-Wire Leased Line Training Sequence	
S31	6-15
Bit Mapped S32	6-15
S33	6-15
Bit Mapped S34	6-16
S35-38	6-16
Connect Message S39	6-16
S40-50	6-16
Bit Mapped S51	6-17
Bit Mapped S52	6-17
801 V.32 Timeout S53	6-17
Flow Control S54	6-18
S55	6-18
V.42 Compression Control S56	6-18
Number Code Application S57	6-19
Inactivity Timer S58	6-19
Break Control S59	6-19
Bit Mapped S60	6-20
DTE Options S61	6-20
Disconnect Buffer Delay S62	6-21
Maximum Transmit Block Size S63	6-21
Auto-Reliable Fallback Character S64	6-21
S65	6-21
Bit Mapped S66	6-21
Link Speed Status S67	6-22
S68	6-22
DCE Independent Speed S69	6-22
Operating Mode S70	6-23
Operating Mode Status S71	6-23
Bit Mapped S72	6-24
S73-77	6-24
Autocallback Timer S78	6-24
Break Length S79	6-25
Serial Port Speed S80	6-25
S81-83	6-25
Bit Mapped S84	6-26
S85-90	6-26

Chapter 7	GENERAL	7-1
V.25 bis Autodialer	Autodialer Command Strings and Parameters	7-1
	GUIDELINES	7-2
	Invalid Responses Explanations	7-3
	DIAL PARAMETERS	7-4
	V.25 bis COMMAND AND RESPONSE DEFINITIONS	7-4
	Dial Command	7-4
	Program Number Command	7-5
	Intermediate Call Progress Responses	7-6
	Dial Stored Number	7-6
	Request List of Stored Numbers	7-6
	Disregard Incoming Call	7-7
	Connect Incoming Call	7-8
	Redial Last Number	7-8
	Link Number by Address	7-9
	Request List of Linked Numbers	7-10
	Request List of Version	7-11
	MODEM OPTIONS COMMAND	7-11
	Save Current Settings	7-14
	Restore Factory Settings	7-14
	Request List of Stored Options	7-15
	OPTIONS	7-17
	Rate Select	7-22
Chapter 8	CCITT V.42 bis ERROR CONTROL PROTOCOL	8-1
Protocols	RELIABLE	8-1
	AUTO-RELIABLE	8-2
	CONSTANT SPEED INTERFACE	8-2
	DATA COMPRESSION	8-2
	NORMAL MODE	8-3
	DIRECT MODE	8-3
	FLOW CONTROL	8-3
Chapter 9	GENERAL	9-1
Maintenance	FUSE	9-1
	MAINTENANCE	9-1

Appendix A	Specifications	.....	A-1
Appendix B	Phone Jack Descriptions	.....	B-1
	DIAL LINE PIN FUNCTIONS		B-1
	TELSSET / LEASED LINE PIN FUNCTIONS		B-1
Appendix C	Test Procedures	.....	C-1
	FAULT ISOLATION PROCEDURE		C-1
	TELEPHONE INTERFACE		C-1
	FALLBACK RATES		C-2
	MODEM AND TELEPHONE LINE CHECK		C-2
	Step 1		C-2
	Step 2		C-3
	Step 3		C-5
	AT COMMAND RECOVERY FOR L		C-5
	MODELS		C-6
	TEST CATEGORIES		C-6
	Local Analog Loop		C-7
	Remote Analog Loop		C-10
	Local Digital Loop		C-11
	Remote Digital Loop		C-12
	Test Pattern		C-12
	With Test Pattern		C-12
Appendix D	Command Index and Defaults	.....	D-1
	GENERAL		D-1
	V.25 bis DIALER COMMANDS		D-13
Appendix E	Abbreviations and Acronyms	.....	E-1
	GENERAL		E-1
Appendix F	ASCII and EBCDIC Character Table	.....	F-1
	GENERAL		F-1
Index		.....

Illustrations
V.3229 / V.3229L

Figure

Chapter 1	1-1	Typical Front Panel	1-3
Introduction	1-2	Typical Front Panel for "L" Model	1-3
	1-3	Rear Panel (115 Vac Model)	1-4
Chapter 2	2-1	Rear Panel Connections	2-2
Installation	2-2	Digital Interface Signals	2-3
	2-3	Dial-up Connection	2-7
	2-4	Leased Line Connection	2-9
Chapter 3	3-1	Cover Removal	3-2
Option Selection	3-2a	Strap Locations	3-4
	3-2b	Strap Locations on Alternative Board	3-5
	3-3	Typical Strap Application	3-6
Chapter 5	5-1	Configuration Storage and Recall	5-34
Asynchronous Operating Commands			
Chapter 6	6-1	Changing S-Register Values	6-2
Status Registers	6-2	Calculating S-Register Value	6-3
Appendix C	C-1	Local Analog Loopback (4-wire)	C-7
Test Procedures	C-2	Local Analog Loop (2-wire dial)	C-8
	C-3	Local Analog Loopback with Analog Bilateral Loopback Enabled (4-wire only)	C-9
	C-4	Remote Analog Loop (4-wire only)	C-10
	C-5	Local Digital Loopback with Bilateral Loop Enabled	C-11
	C-6	Remote Digital Loopback with Digital Bilateral Loop Enabled at the Remote Site	C-12
	C-7	Local Analog Loopback with Test Pattern	C-13
	C-8	Local Modem Initiating Remote Test (Analog or Digital Loopback) with Test Pattern	C-13

Tables
V.3229 / V.3229L

Tables

Chapter 2	2-1	Digital Interface Signal Descriptions	2-4
Installation			
Chapter 3	3-1	Menu Options	3-9
Option Selection			
Chapter 5	5-1	Response Messages	5-10
Asynchronous	5-2	Dial Modifiers	5-12
	5-3	Operating Modes and Features Available	5-41
Chapter 7	7-1	V.25 bis Dial Parameters	7-4
V.25 bis Autodialer			