



User's Manual
SD345 Spectroscope III
Part One
(S/N 180 and On)
Legacy Manual

COGNITIVE VISION, INC.
7220 Trade Street, Suite 101
San Diego, CA 92121-2325 USA

analyzers@cognitivevision.com
www.cognitivevision.com

Tel: 1.858.578.3778 / Fax: 1.858.578.2778
In USA: 1.800.VIB.TEST (842.8378)

LEGACY MANUAL POLICY

Cognitive Vision Legacy manuals are those product manuals and documentation that accompanied earlier products and product lines which have since been discontinued (“Legacy Products”). Over the past thirty years, these include products that were sold by Spectral Dynamics, Scientific Atlanta and Smiths Industries.

Cognitive Vision, Inc. provides downloadable copies of these manuals strictly as a courtesy to its customers who continue to use Legacy Products. **IMPORTANT:** Please read the following Disclaimer carefully. Any use of this manual indicates your express agreement with this policy.

If you have any questions regarding this policy, or for additional information regarding the serviceability of any Legacy Product(s), please call our service department.

DISCLAIMER

IN DOWNLOADING THIS MANUAL, THE USER UNDERSTANDS AND EXPRESSLY AGREES THAT COGNITIVE VISION MAKES NO WARRANTIES WHATSOEVER, EITHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN USING THIS MANUAL, THE USER ACKNOWLEDGES THAT ALL PREVIOUS PRODUCT WARRANTIES ISSUED BY SPECTRAL DYNAMICS, SCIENTIFIC ATLANTA AND SMITHS INDUSTRIES FOR LEGACY PRODUCTS HAVE SINCE EXPIRED.

IN PROVIDING THIS MANUAL, COGNITIVE VISION ASSUMES NO LIABILITY OR RESPONSIBILITY WHATSOEVER TO THE USER OF THIS MANUAL, THE USER’S AGENTS AND/OR CUSTOMERS, OR ANY OTHER PARTY, FOR ANY CLAIMED INACCURACY IN THIS MANUAL, OR FOR DAMAGE CAUSED OR ALLEGED TO BE CAUSED DIRECTLY OR INDIRECTLY BY ANY USE OF THIS MANUAL, REGARDLESS OF WHETHER COGNITIVE VISION WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM MADE AGAINST THE USER’S ORIGINAL PRODUCT WARRANTY.

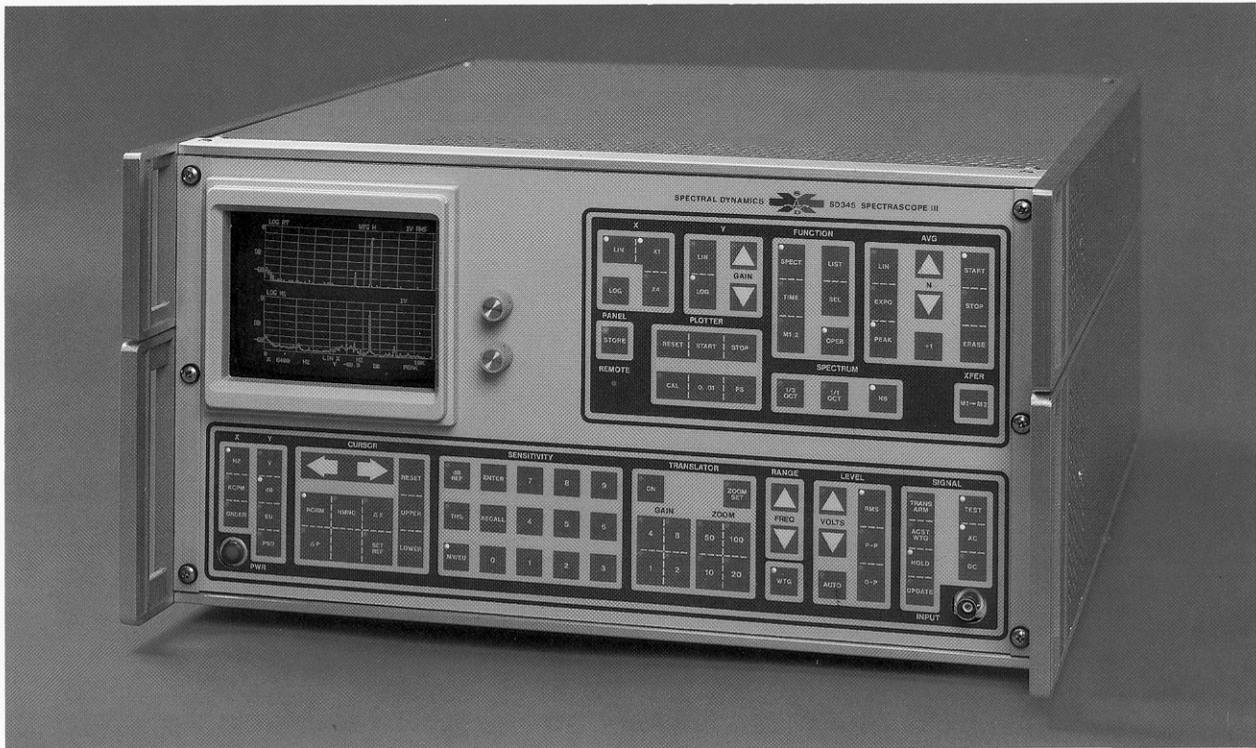
FURTHER, COGNITIVE VISION SHALL NOT BE RESPONSIBLE FOR ANY INTERRUPTION OF SERVICE, LOSS OF BUSINESS, ANTICIPATORY PROFITS, CONSEQUENTIAL DAMAGES, OR INDIRECT OR SPECIAL DAMAGES ARISING UNDER ANY CIRCUMSTANCES, OR FROM ANY CAUSE OF ACTION WHATSOEVER INCLUDING CONTRACT, WARRANTY, STRICT LIABILITY OR NEGLIGENCE.

NOTWITHSTANDING THE ABOVE, IN NO EVENT SHALL COGNITIVE VISION’S LIABILITY TO THE USER EXCEED AN AMOUNT EQUAL TO THE REPLACEMENT COST OF THIS MANUAL.

COGNITIVE VISION, INC.
7220 Trade Street, Suite 101
San Diego, CA 92121-2325 USA

analyzers@cognitivevision.com
www.cognitivevision.com

Telephone: 1.858.578.3778 / Fax: 1.858.578.2778
IN USA: 1.800.VIB.TEST (842.8378)



SD345 SPECTRASCOPE III

**USER'S MANUAL
SD345
SPECTRASCOPE III
(S/N 180 AND ON)**

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

PROPRIETARY RIGHTS OF SPECTRAL DYNAMICS CORPORATION are involved in the subject matter of this material and all manufacturing, reproduction, use and sales rights pertaining to such subject matter are expressly reserved. It is submitted in confidence for a specified purpose, and the recipient, by accepting this material, agrees that this material will not be used, copied or reproduced in whole or in part, nor its contents revealed in any manner, or to any person, except for the purpose delivered.



Spectral Dynamics
Scientific-Atlanta

P.O. Box 671 • San Diego, CA 92112 • (714) 268-7100 • TWX 910-335-2022

JANUARY 1980

TABLE OF CONTENTS

Section	Page
I GENERAL INFORMATION	
1.1 Introduction	1-1
1.2 Other Documentation	1-1
1.3 Equipment Description	1-1
1.4 Standard Features	1-1
1.5 SD345 Option	1-2
1.5.1 Digital Translator (-1 Option)	1-2
1.5.2 1/3, 1/1 Octave Capability (-2 Option)	1-2
1.5.3 Digital I/O System (-3 Option)	1-2
1.6 SD345 Accessory Kit	1-3
1.7 Ancillary Equipment	1-3
1.8 Required Equipment	1-3
1.9 Specifications	1-3
1.9.1 Inputs	1-3
1.9.2 Processing Parameters	1-4
1.9.3 Analysis Characteristics	1-4
1.9.4 Averager Characteristics	1-4
1.9.5 Displays	1-5
1.9.6 Output Characteristics	1-5
1.9.7 Miscellaneous	1-6
1.10 Replacement Parts	1-7
II INSTALLATION	
2.1 Introduction	2-1
2.2 Initial Inspection	2-1
2.2.1 Unpacking	2-1
2.2.2 Equipment Furnished	2-1
2.2.3 Check for Physical Damage	2-1
2.2.4 Reshipment Procedure	2-1
2.2.5 Returned Equipment with Warranty or Damage Claims	2-1
2.3 Safety Precautions	2-1
2.3.1 Explosion Hazard	2-1
2.3.2 Shock Hazard	2-1
2.4 Preparation for Use	2-2
2.4.1 Power Requirements	2-2
2.4.2 Mounting	2-2
2.4.3 Equipment Interconnections	2-2
III OPERATION	
3.1 Introduction	3-1
3.2 Front Panel Functional Description	3-1
3.2.1 Input Group	3-1
3.2.2 SENSITIVITY Group Keyboard	3-3
3.2.3 Analysis Group	3-4
3.2.4 TRANSLATOR Group (Standard Option)	3-11

TABLE OF CONTENTS (Continued)

Section	Page
3.2.5 CRT Group	3-11
3.2.6 CURSOR Group	3-12
3.2.7 PWR Push Button/Indicator	3-14
3.3 Rear Panel Functional Description	3-14
3.3.1 INPUT Group	3-14
3.3.2 Output Group	3-15
3.3.3 Miscellaneous Group	3-15
3.3.4 Power Group	3-18
3.4 Preliminary Powering	3-18
3.5 Front Panel Control Familiarization	3-19
3.5.1 Initial POWER ON Condition	3-19
3.5.2 Display and Control Familiarization	3-20
3.5.3 Display Combination Selection	3-23
3.5.4 SENSITIVITY Selection	3-25
3.5.5 CURSOR Group Functions	3-27
3.5.6 Operational Notes	3-29
3.6 Operational Checkout	3-31
3.6.1 Setup	3-31
3.6.2 Linearity Check	3-32
3.6.3 Alphanumeric Display (Hz and KCPM) Check	3-33
3.6.4 Alphanumeric Display (ORDERS) Check	3-34
3.6.5 Alphanumeric Display (V) Check	3-34
3.6.6 Alphanumeric Display (dB) Check	3-35
3.6.7 Analysis Mode Check	3-36
3.6.8 LIN Y-GAIN Check	3-37
3.6.9 Time Mode Check	3-37
3.6.10 Arithmetic Function (M1,2) Check	3-37
3.7 Operator Maintenance	3-38
3.7.1 Introduction	3-38
3.7.2 Cleaning	3-38
3.7.3 Operator Checks	3-39
IV CONCEPT OF OPERATION	
4.1 General	4-1
4.2 Concept of Operation	4-1
4.2.1 Timing and Input Control	4-1
4.2.2 Input Section	4-2
4.2.3 Input Memory	4-2
4.2.4 Microprogram Control Section	4-2
4.2.5 CPU Section and Processor/Averager Memories	4-2
4.2.6 Output Control and Display Section	4-3

LIST OF ILLUSTRATIONS

Figure	Page
2-1. Low Line Voltage Toggle Switch and a Simplified Top View of the SD345 with the Cover Removed Showing the Location of the Toggle Switch	2-2
3-1. Model SD345 Front Panel	3-1
3-2. Model SD345 Rear Panel	3-14
3-3. Initial POWER ON Display	3-19
3-4. Front Panel Description of the Initial POWER ON Condition. LEDS with this Indication  should be lighted during Initial POWER ON	3-19
3-5. CRT Alphanumerics and Related Front-Panel Controls	3-20
3-6. CRT Display Combinations and Controls ...	3-23
3-7. SENSITIVITY Group Touch Controls and Portions of the CRT Display	3-25
3-8. CURSOR Group Controls and Related Display Functions	3-27
4-1. SD345 Concept of Operation	4-1
4-2. Input Memory Organization	4-2

LIST OF TABLES

Table	Page
1-1. Special Replaceable Parts List, Printed Wiring Assemblies	1-8
1-2. Special Replaceable Parts List, PROMS	1-9
1-3. Special Replaceable Parts List, Integrated Circuits	1-10
1-4. Special Replaceable Parts List, Controls and Indicators	1-11
3-1. DIGITAL Connector (J16) Pin Assignments	3-17
3-2. SENSE & CONTROL Connector (J17) Pin Assignments	3-17
3-3. AUXILIARY Connector (J18) Pin Assignments	3-18
3-4. Description of Figure 3-5a, b & c	3-21
3-5. Equipment Required	3-31
3-6. GAIN Selection	3-32
3-7. Spectrum, Overall and ΔP Linearity	3-32
3-8. Alphanumeric Display Readings (HZ and KCPM)	3-33
3-9. Alphanumeric Display Readings (V)	3-34
3-10. Alphanumeric Display Readings (EU)	3-35
3-11a,b M1,2 Arithmetic Functions	3-38