

FLUKE®

SW90W
FlukeView® ScopeMeter® Software

Users Manual

September 2001

© 1996, 2001 Fluke Corporation. All rights reserved.

All product names are trademarks of their respective companies.

Table of Contents

Chapter	Title	Page
	Installing FlukeView	1
	Installing the FlukeView Software	1
	Running the FlukeView Software	2
	Connecting the ScopeMeter Test Tool.....	3
	Using FlukeView	4
	Using Online Help	4
	Introducing the FlukeView Software	6
	Instrument Screens	7
	Waveforms	8
	Readings	9
	Instrument Setups	10
	Creating a Test Report.....	11
	Documenting Screens	13
	Displaying an Instrument Screen on the PC.....	13
	Replaying Screens	15
	Inserting Screens into a Document.....	17
	Analyzing Waveforms	18
	Displaying Waveforms on the PC	18
	Zooming In and Out on a Waveform	21
	Scaling a Waveform	21
	Replaying Waveforms	22
	Generating an FFT-Spectrum from a Waveform	24
	Automatic Spectrum Updates.....	26
	Logging Readings	28
	Graphing Readings	28
	Inserting Readings into a Spreadsheet	31
	Transferring Instrument Setups	32
	Reading/Saving Setups from/to File	32
	Saving/Recalling the Active Setup to/from ScopeMeter	33
	Printing Windows.....	34
	Saving Windows to a File.....	36
	Optically Isolated RS-232 Interface (optional)	37
	Interface Connections	37
	Interface Specifications	38
	Interface Cable.....	39
	Warranty	40
	Index	41

Chapter 1

Installing FlukeView

Installing the FlukeView Software

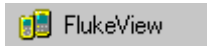
FlukeView® software offers you simple mouse-controlled tools to work with your ScopeMeter® test tool.

The setup program installs the FlukeView software on PC's running Windows 95, 98, ME (Millennium Edition), NT 4, 2000, and XP.

To install FlukeView, insert the CD ROM into the CD ROM drive, or insert the first floppy in the appropriate floppy disk drive and run SETUP.

The setup program starts up and prompts you for information to complete the installation.

Running the FlukeView Software



Choose from **Start - Programs - FlukeView - ScopeMeter 4.0 English** to run the FlukeView software.



Choose from **Start - Programs - FlukeView - ScopeMeter 4.0 English** to create a test report in Word.

Note

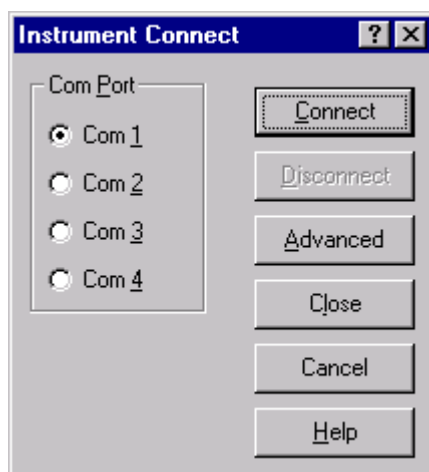
To use the QREPORT template, copy the file QREPORT.DOT to your Word template directory (or folder).

Connecting the ScopeMeter Test Tool

The FlukeView software communicates with your ScopeMeter test tool via the optically isolated RS-232 adapter/cable (see [Appendix](#)) connected to a COM port of the PC.

During startup (except for the first time), the FlukeView software automatically tries to make a connection with the instrument according to the last valid connection.

If automatic connection is not successful, the dialog box shown below appears, allowing you to make a connection.

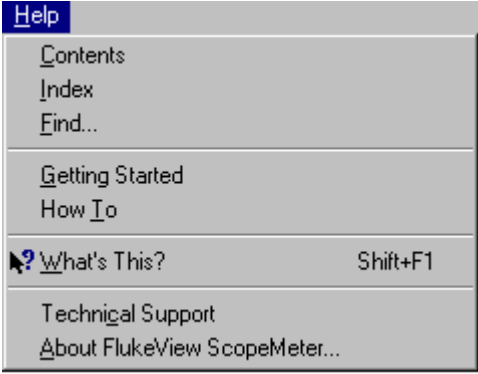


- 1 Select the **Com Port** that connects the instrument to the PC.
- 2 Click **Connect** to establish a connection with the instrument.

Chapter 2 Using FlukeView

Using Online Help

The FlukeView software offers you access to online help by using the **F1** key, a **Help** button, “**What’s This?**” help, or the **Help** menu:

 or Shift+ 	Press to get online help for the topic that has the focus.
 or 	Click, move the mouse pointer on a topic, and click again to get “What’s This” help.
	Click to get help in dialog and error boxes.
	For example: Click Help - How To and view the online manual on the screen. Click Help - Technical Support to get access to the Fluke home page.

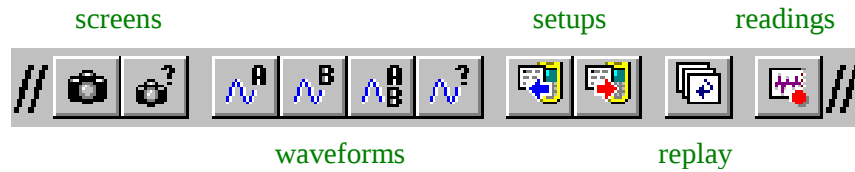
Note

To show help items on a help page, do one of the following:

- *move the mouse pointer (changes to  above a help item);*
- *press **Tab** (changes the `background` of a help item).*

Introducing the FlukeView Software

By clicking the following buttons on the toolbar, you can read data directly from the ScopeMeter test tool:



You can save, open, and print the data, or export it to other programs.

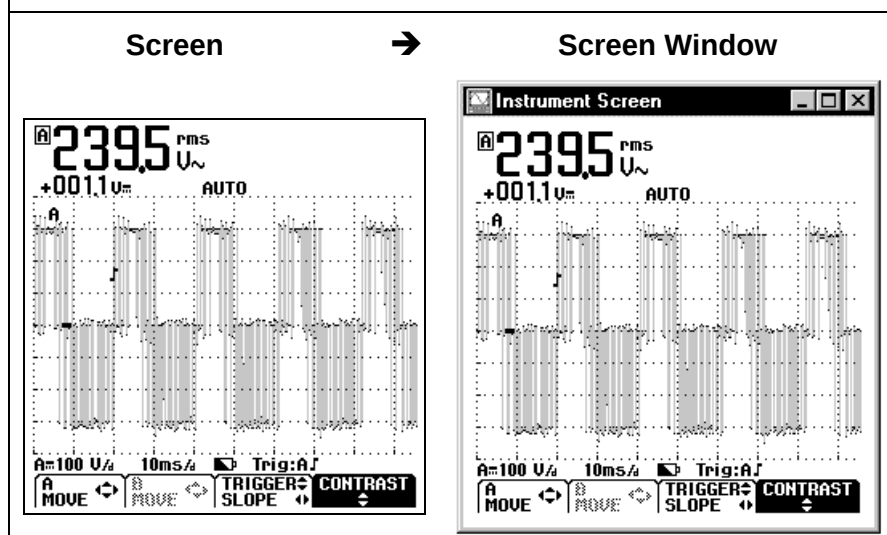
FlukeView software enables you to read the following types of data from the ScopeMeter test tool into a window on the PC screen.

Instrument Screens



Type: bitmap graphics data from the instrument's screen (in pixel-format)

Use: to create documents and reports



Waveforms



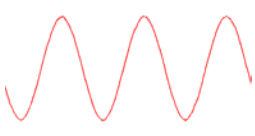




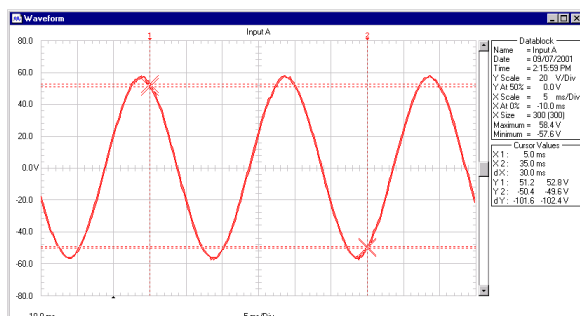
Type: numerical waveform points to generate Y-t vector-graphics data

Use: to analyze by zooming, scaling, or creating a spectrum from

Waveform →



Waveform Window



Readings



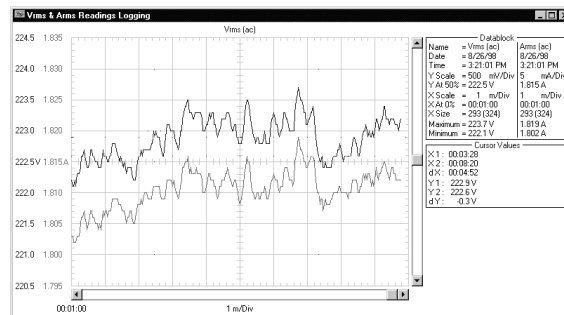
Type: numerical values to log Y-X vector-graphics data

Use: to analyze by zooming, scaling, or creating a spectrum from

Readings →

Waveform (Readings) Window

223.7 V_{rms} **1.810** A_{rms}
 AUTO 4998Hz



Instrument Setups



Type: binary settings data from the instrument

Use: to retrieve and send back instrument setups

Setup →
←

[actual
ScopeMeter
settings]

Setup Window



Creating a Test Report

- 1  QReport Choose from **Start - Programs - FlukeView - ScopeMeter 4.0 English** to create a test report (using Word).

As a result, Word is started and the required macros are loaded.

In Word, select **Enable Macros** when requested.

- 2 Click predefined fields (**Company, Contact, ...**) and type your text.
- 3  Click to insert the active ScopeMeter screen.
As a result, FlukeView is started, a connection is made, and the active **Instrument Screen** is pasted into the document.
- 4 Click the **Description** field and type your text.
- 5  Click to print your test report. See the next page for an example of a test report.
- 6  Click to save your test report.
- 7 Exit Word to continue with the next section of this manual.

Fluke ScopeMeter® Test Report

Company: Fluke Industrial

Contact: A. Person

Address: Street 90

Zip: 1234 AB

City: Almelo

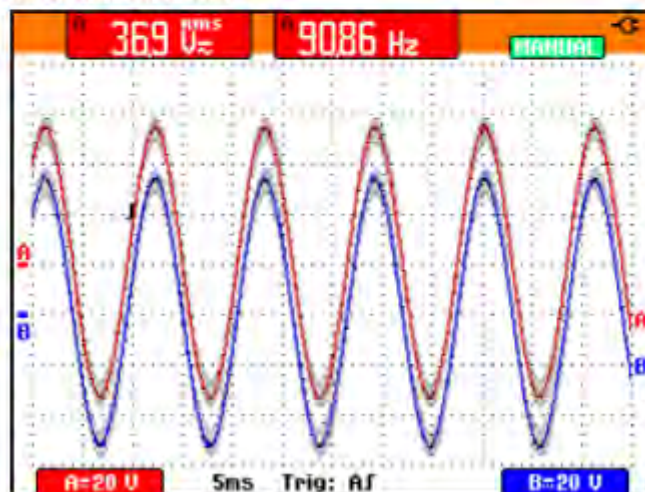
Phone: 12 345 678910

Fax: 12 345 678911

E-mail: aperson@almelo.fluke.nl

Date: September 6, 2001

Instrument Screen:



Description:

On these lines you can type your description.

Documenting Screens

Displaying an Instrument Screen on the PC

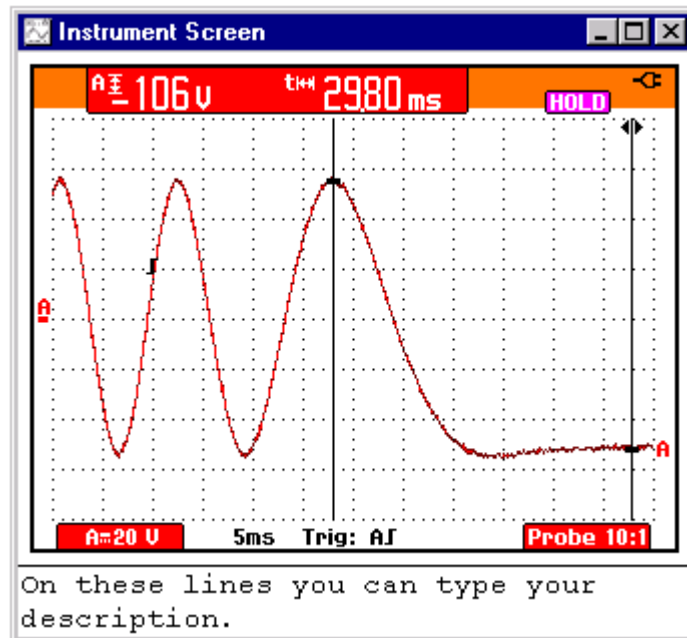
- 1a**  Click to display the **active** ScopeMeter screen in a screen window.
- 1b**  Click. A dialog box appears allowing you to select specific ScopeMeter screens to display in screen windows.

Tip

To specify conditions for transferring screens, choose **Instrument - Multiple Transfers**.

To change the window to your preference:

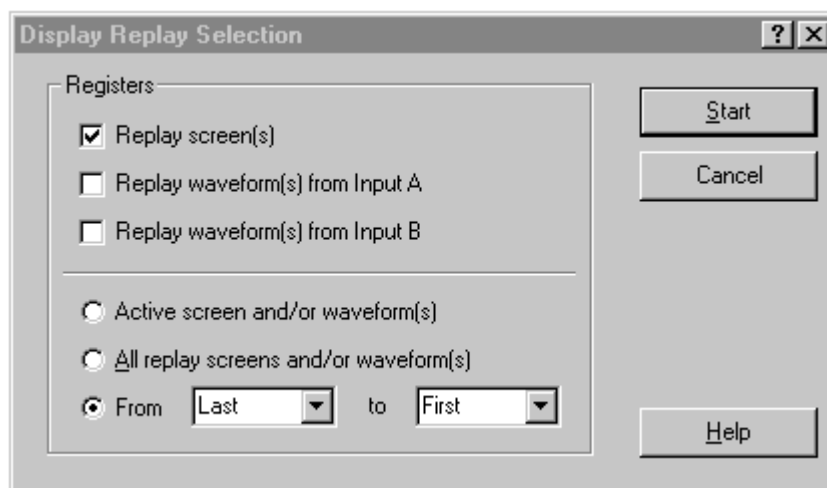
- 2** Select **Options - Add Description** and type a description in the text box below the window (max. 10 lines).
- 3** Select **Options - Title** to change the title of the window.
- 4** Select **Options - Colors** to change window colors.



Each ScopeMeter screen appears in a separate screen window.

Replaying Screens

- 1  Click. A dialog box appears allowing you to make the following selections:

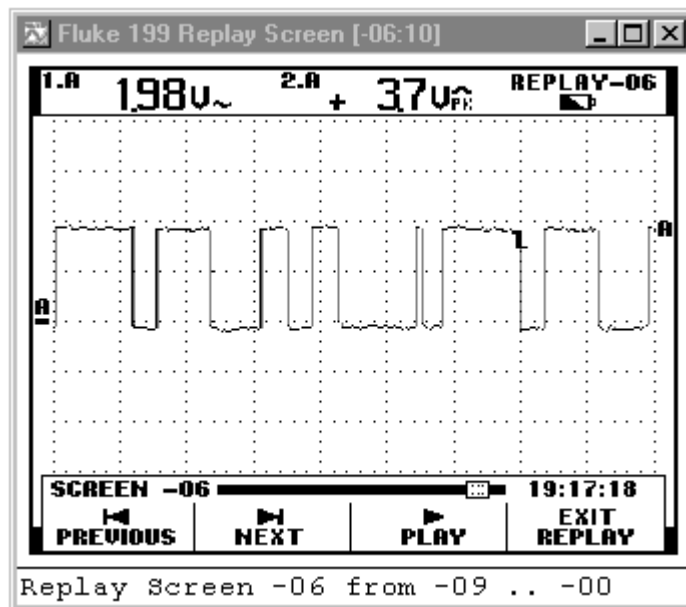


- 2 Click **Start** to read and display the replay screens.

Note

To stop reading and displaying the replay sequence, click  or press **Esc**.

- 3 If applicable, choose **View - Ratio 4:3** to change the X:Y ratio of the window.



To change the window to your preference:

- 4   Click to view the previous or next replay screen.
You can also choose **View - Replay** to scan through the replay sequence of screens.
- 5 Select **Options - Add Description** and type a description in the text box below the window (max. 10 lines).
- 6 Select **Options - Title** to change the title of the window.
- 7 Select **Options - Colors** to change window colors.

Inserting Screens into a Document

- 1 Click on the screen window you want to insert.

Tip

To avoid losing resolution because of copying to the clipboard, choose **Windows – Default Size**.

- 2  Click to copy the window to the clipboard.
- 3 Switch to a wordprocessor.
- 4 Open or create a document and place the cursor where you want to insert the window.
- 5 Select **Edit - Paste** to insert the screen window into the document.
- 6  Click to save your document.

Note

In the same way, you can insert waveform and spectrum windows into a document.

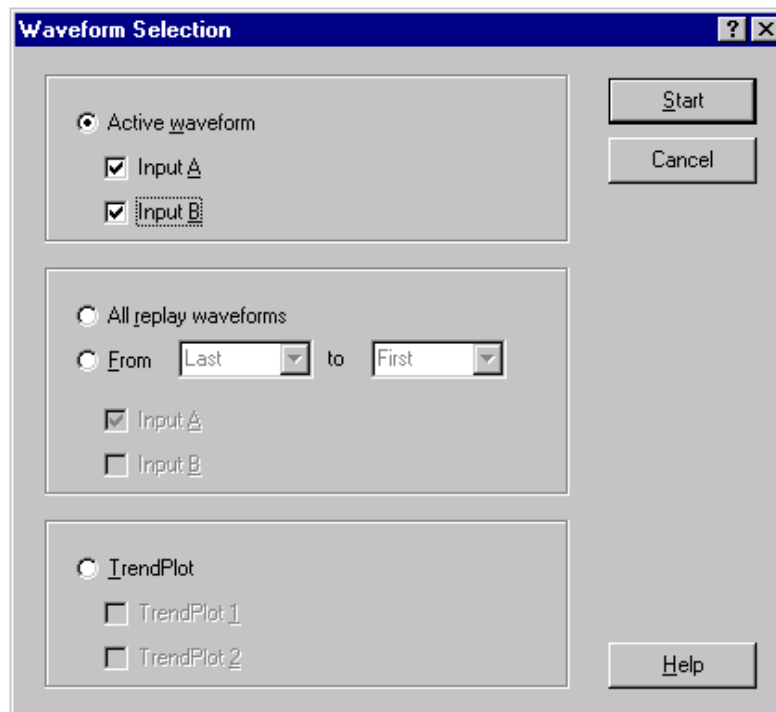
Analyzing Waveforms

You can read numerical waveform samples from the ScopeMeter test tool and display these samples in a waveform window. Up to four waveforms can be displayed in a window.

To demonstrate this, a trace will be read from Input A and B.

Displaying Waveforms on the PC

- 1  Click. A dialog box appears allowing you to select the waveforms you want to read.



- 2 Choose **Active waveform**.
- 3 Choose **Input A** and **Input B**.
- 4 Click **Start** to read and display the selected waveforms.

To change the window to your preference:

- 5** Select **Options - Add Description** and type a description in the text box below the window (max. 10 lines).
- 6** Select **View - Datablock** to show the data block.
- 7** Select **View - Cursors** to show the cursors.
- 8** Select **Options - Colors** to change waveform colors.

See the next page for an example of a waveform window.

Tips



Click to quickly read the waveform from INPUT A.

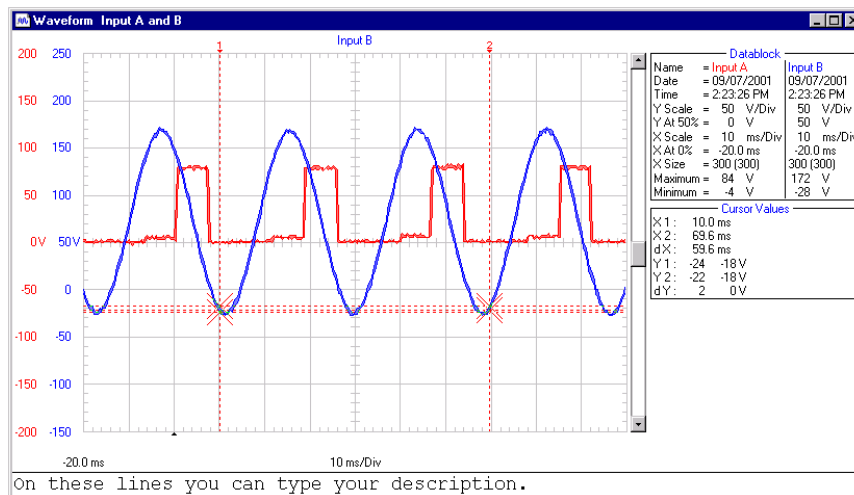


Click to quickly read the waveform from INPUT B.



Click to quickly read the waveforms from INPUT A and INPUT B.

- To specify conditions for transferring waveforms, choose **Instrument - Multiple Transfers**.
- To change the scaling, select **Options - Scales**.
- To change window titles, select **Options - Titles**.
- To show or hide the description, select **View - Description**.



Use the mouse or (Shift) ← → keys to move the cursors.

Datablock	Cursor Values
Name : Name of the waveform	X1 : Time at cursor 1
Date : Date of the waveform	X2 : Time at cursor 2
Time : Time of the waveform	dX : X2 - X1
Y Scale : Vertical scale	Y1 : Minimum and maximum value at cursor 1
Y At 50% : Vertical position	Y2 : Minimum and maximum value at cursor 2
X Scale : Horizontal scale	dY : Minimum and maximum Y2 - Y1
X At 0% : Horizontal position	
X Size : Shown (Total) number of waveform points	
Maximum : Maximum value	Notice that values apply to the active waveform.
Minimum : Minimum value	

Note

The Date and Time formats depend on the Windows® settings.

Zooming In and Out on a Waveform

Drag with the mouse in the graph to select and zoom in on the part of the waveform you want to enlarge.



Click to zoom in on a waveform.

Use the scroll bar to select the part you want to view.



Click to zoom out on a waveform (undoes one 'zoom in' step).

Scaling a Waveform

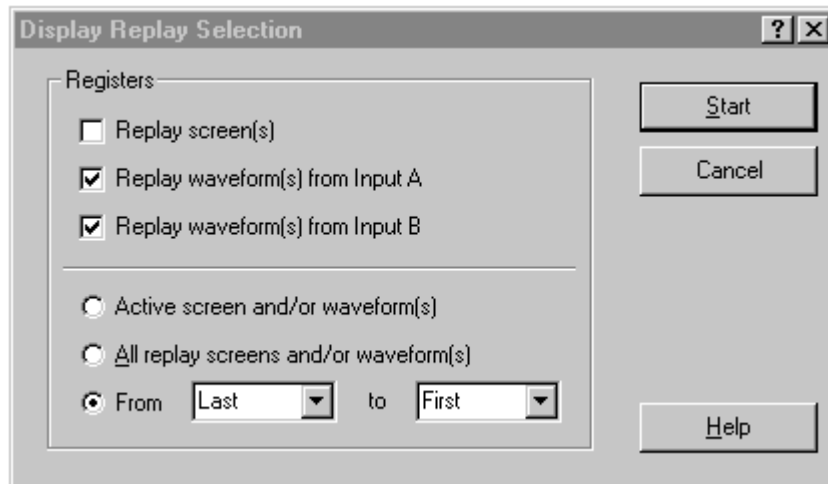
If a waveform is not completely shown in a window, a scroll bar is displayed. Use this scroll bar to select the part you want to view.

Select **Options - Scales**, to change the following in the active window:

- horizontal scaling (Time axis) of all waveforms
- vertical scaling (Y axis) of the active waveform

Replaying Waveforms

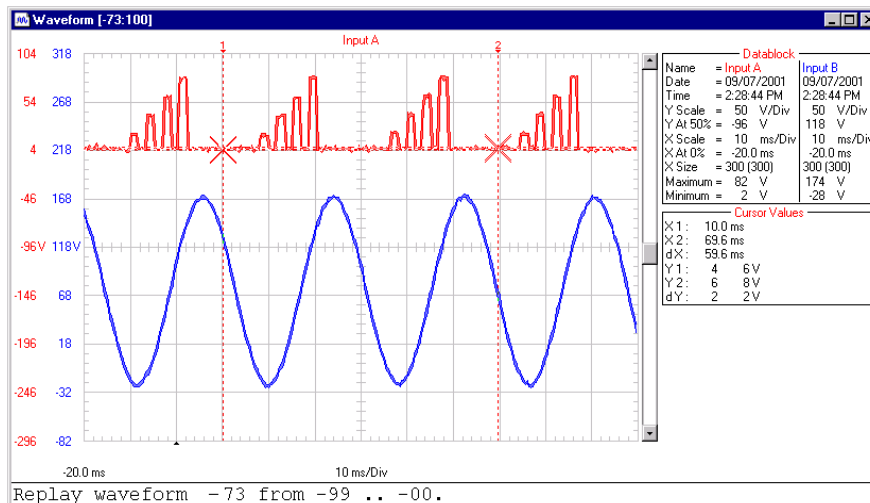
- 1  Click. A dialog box appears allowing you to make the following selections:



- 2 Choose **Replay waveform(s) from Input A** and **Replay waveform(s) from Input B**.
- 3 Select the range of waveforms (**From - to**) you want to display.
- 4 Click **Start** to read and display the replay waveforms.

Note

To stop reading and displaying the replay sequence, click  or press **Esc**.



To change the window to your preference:

- 5   Click to view the previous or next replay waveform.
You can also choose **View - Replay** to scan through the replay sequence of waveforms.
- 6 Select **Options - Add Description** and type a description in the text box below the window (max. 10 lines).
- 7 Select **Options - Title** to change the title of the window.
- 8 Select **Options - Colors** to change window colors.

Generating an FFT-Spectrum from a Waveform

For spectrum calculations, a repetitive waveform or a waveform that contains repetitive components is superposed of a fixed offset value (DC component) and a number of sine waves. The spectrum shows the amplitude and frequency of each sine wave as a bar-graph. The value of the DC component is shown in the datablock.

- 1** Select the waveform from which you want to generate a spectrum.
In a multiple waveform window, select **View - Active Waveform** or click with the mouse to choose the active waveform.
- 2** Select **Tools - Spectrum**. The Spectrum is created and displayed in a spectrum window.

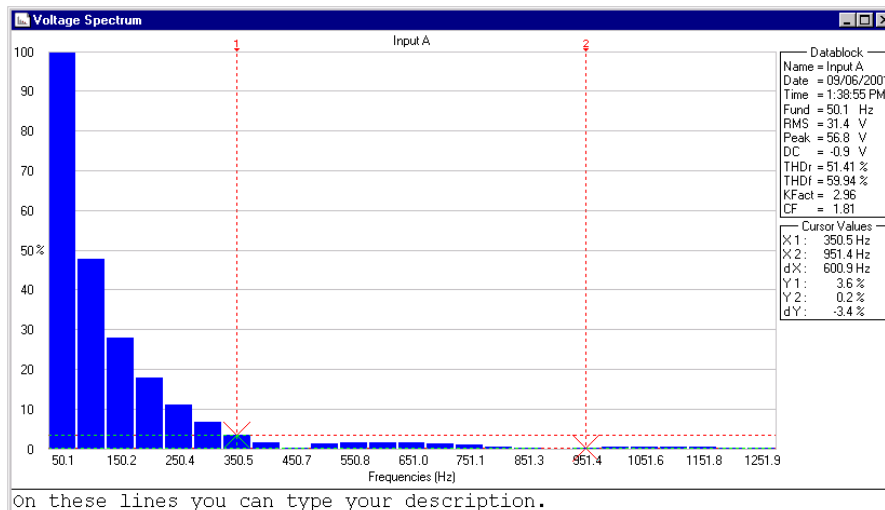
To change the window to your preference:

- 3** Select **Options - Add Description** and type a description in the text box below the window (max. 10 lines).
- 4** Select **View - Datablock** to show the data block.
- 5** Select **View - Cursors** to show the cursors.
- 6** Select **Options - Colors** to change spectrum colors.

See the next page for an example of a spectrum window.

Tips

- To change window titles, select **Options - Titles**
- To change the scaling, select **Options - Scales**
- To show or hide the description, select **View - Description**



Use the mouse or (Shift) ← → keys to move the cursors.

Datablock	Cursor Values
Name : Name of the spectrum	X1 : Frequency (or Harmonic Number) at cursor 1
Date : Date of the waveform	X2 : Frequency (or Harmonic Number) at cursor 2
Time : Time of the waveform	dX : X2 - X1
Fund : Fundamental frequency	Y1 : Spectrum value at cursor 1
RMS : Root Mean Square	Y2 : Spectrum value at cursor 2
Peak : Maximum value	dY : Y2 - Y1
DC : Direct Current value	
THDr : Total Harmonic Distortion (RMS)	
THDf : Total Harmonic Distortion (Fund)	
KFact : K-factor	
CF : Crest factor (Peak/RMS)	

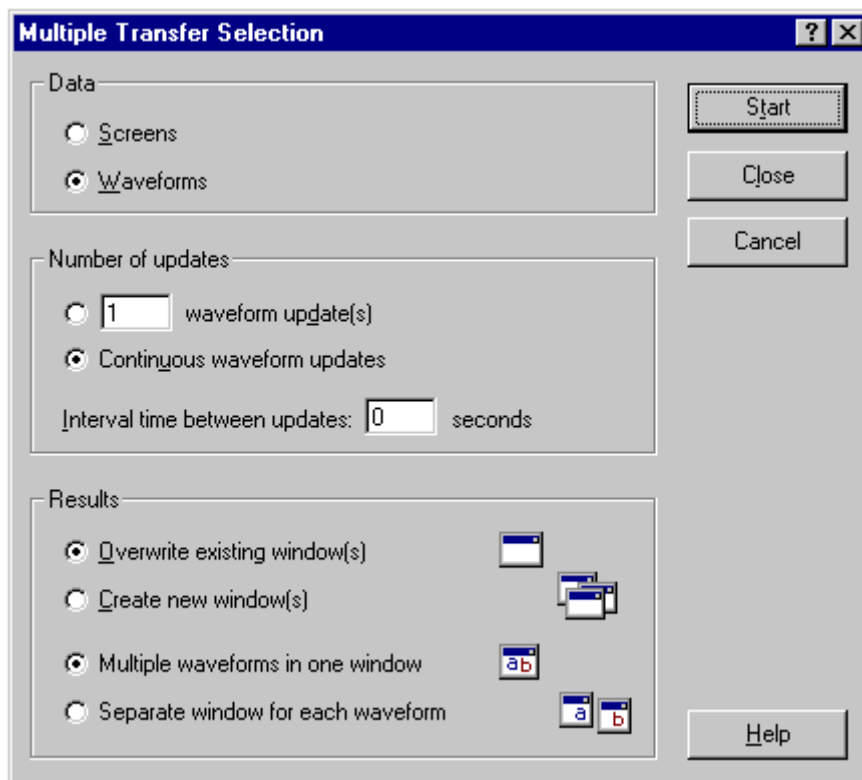
Note

The Date and Time formats depend on the Windows® settings.

Automatic Spectrum Updates

To get continuous updates of a waveform and spectrum, do the following:

- 1  Click to select and display the waveform from which to create a spectrum.
- 2 Select **Tools - Spectrum** to create a spectrum from the waveform.
- 3 Select **Window - Auto Tile** to tile the waveform and spectrum window on the PC screen.
- 4 Select **Instrument - Multiple Transfers**. A dialog box appears.



- 5 Choose **Continuous waveform update(s)** and **Overwrite existing window(s)**.
- 6 Click **Start** to get continuous waveform and spectrum updates.

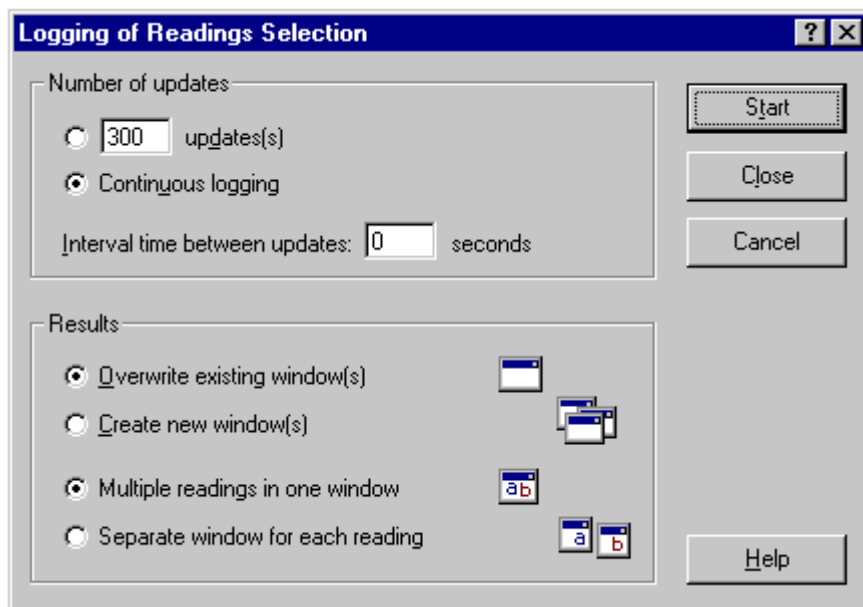
Logging Readings

Graphing Readings

You can transfer and graph readings taken by the ScopeMeter test tool over a period of time. Up to four types of readings can be displayed in a window.

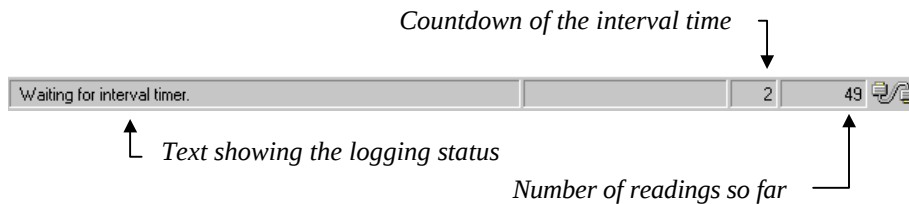
To demonstrate this, four types of readings will be logged.

- 1  Click. A dialog box appears allowing you to select the logging parameters.



- 2 Set **Interval time** to three seconds, and choose **Continuous logging**, **Overwrite existing window(s)**, and **Multiple readings in one window**.
- 3 Click **Start**. A dialog box appears allowing you to select the type of readings you want to log.

- 4 Click **Start** to start logging. The status bar shows the logging progress.



- 5  Click to stop logging.

To change the window to your preference:

- 6 Select **View - Datablock** to show the datablock.
- 7 Select **View - Cursors** to display the cursors.
- 8 Select **Options - Add Description** and type a description in the text box below the window (max. 10 lines).
- 9 Select **Options - Colors** to change waveform colors.

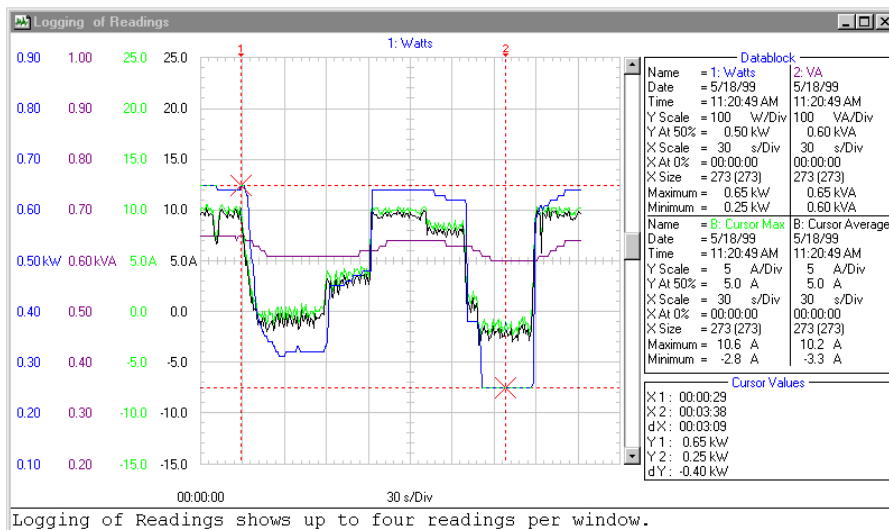
See the next page for an example of logged readings in a waveform window.

Tips



Click to zoom in on a part of a waveform.

- To change window titles, select **Options - Titles**.
- To show or hide the description, select **View - Description**.
- To create a spectrum from a waveform of readings, select **Tools - Spectrum**.



Use the mouse or (Shift) ← → keys to move the cursors.

Datablock	Cursor Values
Name : Name of the waveform	X1 : Time at cursor 1
Date : Date of the waveform	X2 : Time at cursor 2
Time : Time of the waveform	dX : X2 - X1
Y Scale : Vertical scale	Y1 : Readings value at cursor 1
Y At 50% : Vertical position	Y2 : Readings value at cursor 2
X Scale : Horizontal scale	dY : Y2 - Y1
X At 0% : Horizontal position	Notice that values apply to the active waveform.
X Size : Shown (Total) number of waveform points	
Maximum : Maximum value	
Minimum : Minimum value	

Note

The Date and Time formats depend on the Windows® settings.

Inserting Readings into a Spreadsheet

- 1** Click on the waveform of readings you want to insert.
- 2** Select **Edit - Copy Data** to copy the reading's data to the clipboard.
- 3** Switch to a spreadsheet program.
- 4** Open or create a worksheet and place the cursor where you want to insert the data.
- 5** Select **Edit - Paste** to insert the data into the worksheet with the numerical readings arranged in columns.
- 6**  Click to save your spreadsheet.

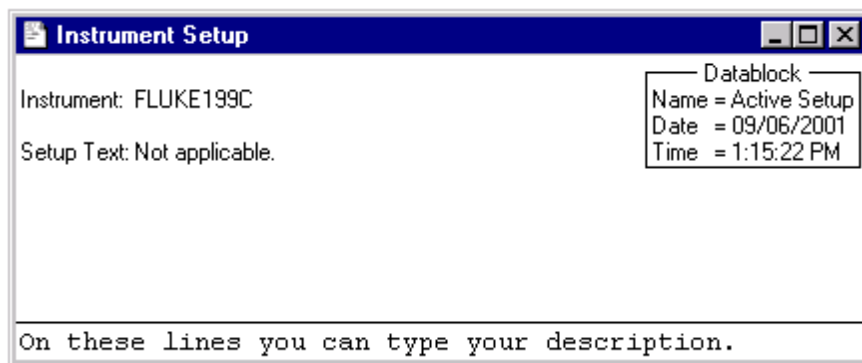
Note

You can insert waveform and spectrum points into a spreadsheet in the same way.

Transferring Instrument Setups

Reading/Saving Setups from/to File

- 1  Click to read the active setup or setups from ScopeMeter memories.
- 2 Select **Options - Add Description** and type a description in the text box below the window (max. 10 lines).
- 3 Select **Options - Title** to change the title of the window.
- 4 Select **View - Datablock** to show the datablock.
- 5 Select **Options - Colors** to change window colors.



Each ScopeMeter setup appears in a separate setup window.

If available from the ScopeMeter test tool, the Setup Text box shows setup information.

- 6  Click to send the setups from the selected setup windows to ScopeMeter memories.

Saving/Recalling the Active Setup to/from ScopeMeter

- 1** Select **Instrument - Remote Control**. A dialog box appears.
- 2** Click **Save Setup**. A dialog box appears.
- 3** Click on the down arrow to display the list with setup memories.
- 4** Click on the memory location in which you want to save the active setup.
- 5** Click **Save** to send the setup to the selected memory.

The active ScopeMeter setup has been saved in a ScopeMeter memory.

- 6** Click **Recall Setup**. A dialog box appears.
- 7** Click on the down arrow to display the list with setup memories.
- 8** Click on the memory location that contains the setup you want to make active.
- 9** Click **Recall** to recall the new active setup.

The active ScopeMeter setup has been recalled from a ScopeMeter memory.

Click **Close** to close the dialog box.

Printing Windows

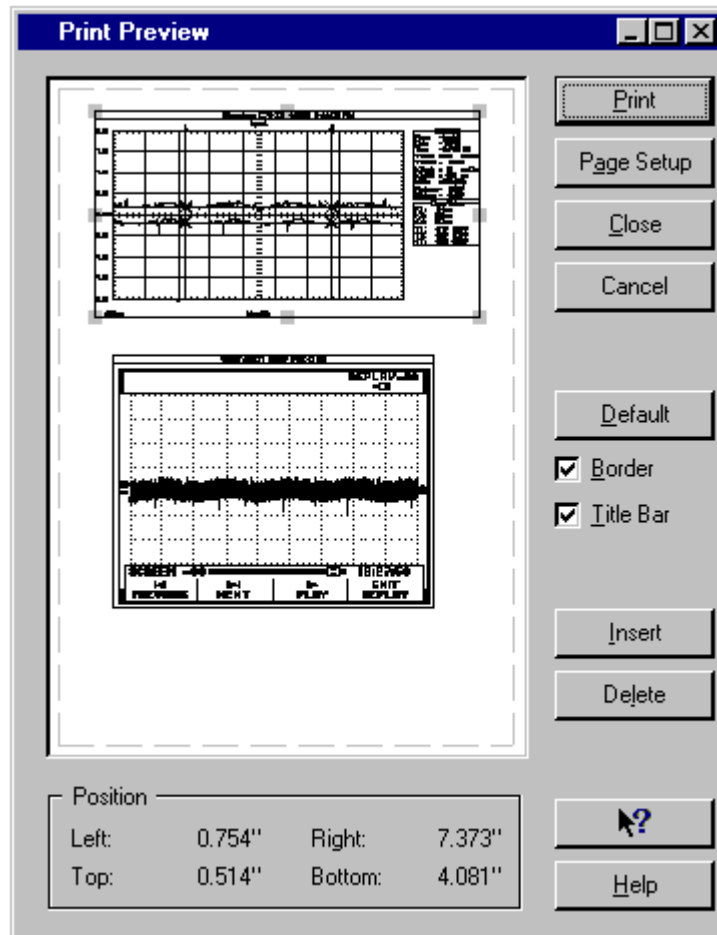
The Print Preview function enables you to preview any combination of screen, waveform, readings, spectrum, and setup windows on a page before printing.

- 1 Click on the window you want to print.
- 2  Click to preview the window on the page.

See next page for the window.

- 3 Choose **Border** to add a border around the active window.
- 4 Choose **Title Bar** to add the title of the active window.
- 5 Click **Insert** to add more windows on a page. A dialog box appears allowing you to select another window.
- 6 Click **Page Setup** to change the page setup
- 7 Click **Print** to start printing the window(s).

To change printer settings, select **File - Print Setup**.



Saving Windows to a File

You can save any combination of screen, waveform, readings, spectrum, and setup windows to an FVF file.

- 1 Click on the window you want to save.
- 2  If there are more windows, a dialog box appears.

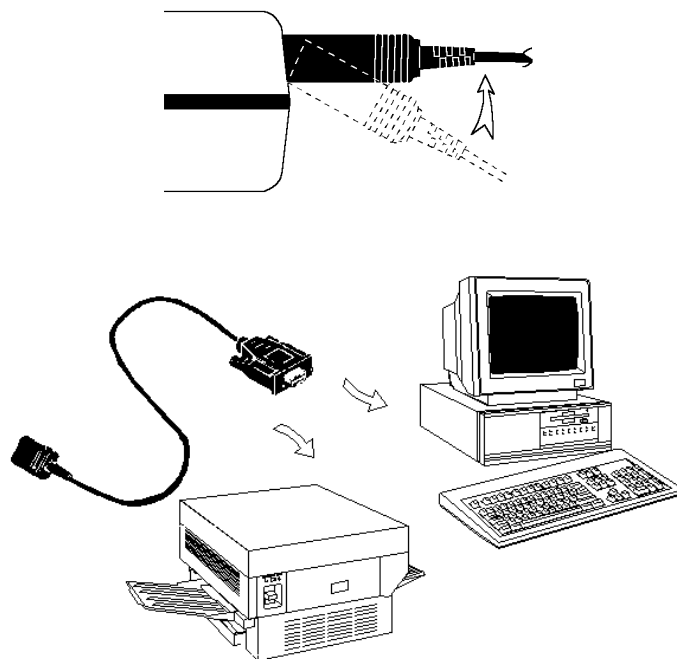


- 3 Select the windows of your choice or click **All** to select all windows.
Click **Save**. Another dialog box appears.
- 4 Enter a name for the file in the **File Name** box (FVF is default file type).
- 5 Click **OK** to start saving the windows you selected to the file.

For more information on saving to a file, select **Index - File Formats** from the **Help** menu.

Appendix A Optically Isolated RS-232 Interface (optional)

Interface Connections



Interface Specifications

Type of interface:

RS-232 / EIA-232-D, optically isolated

States:

- SPACE = 0 Light
- MARK = 1 No light

Wavelength = 800 nm

RXD signal levels:

- SPACE = +10V to +4V Max. input = +15V
- MARK = -4V to -10V Min. input = -15V

Other signal levels:

- SPACE = +12V to +7V Max. input = +15V
- MARK = -7V to -12V Min. input = -15V

Handshake method:

XON/XOFF, software handshake only

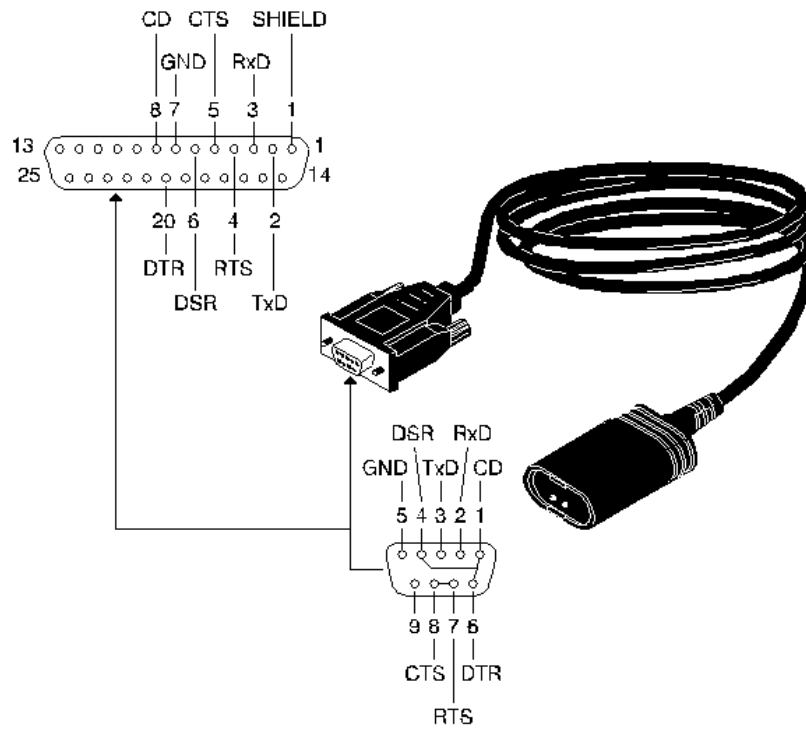
Environmental:

- Meets requirements of MIL-T-28800D Type III, Class 3
- Temperature: Operating = 0 °C to +50 °C
Storage = -20 °C to +70 °C

Mechanical:

- Cable length = 1.5 m
- Weight = 0.14 kg

Interface Cable



Warranty

LIMITED WARRANTY & LIMITATION OF LIABILITY

This Fluke product will be free from defects in material and workmanship for three years from the date of purchase. This warranty does not cover damage from accident, neglect, misuse or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke's behalf. To obtain service during the warranty period, send your defective product to the nearest Fluke Authorized Service Center with a description of the problem. Fluke warrants that software will operate substantially in accordance with its functional specifications for 90 days and that it has been properly recorded on non-defective media. Fluke does not warrant that software will be error free or operate without interruption.

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. FLUKE IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY.

Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

Index

A

Active Waveform	24
Analyzing Waveforms.....	18
Automatic Spectrum Updates.....	26

B

Bitmap-graphics.....	7
----------------------	---

C

Cable	
RS-232.....	39
Colors	13, 16, 19, 23, 24, 29, 32
COM Port.....	3
Continuous Waveform and Spectrum Updates.....	27
Continuous waveform update(s)	27, 28
Crest-factor.....	25
Cursor Values	20, 25, 30
Cursors	19, 24, 29

D

Datablock.....	19, 20, 24, 25, 29, 30, 32
DC	24, 25
Description.....	13, 16, 19, 23, 24, 29, 32
Document	17

F

FFT-Spectrum	24
Fundamental Frequency.....	25
FVF File	36

SW90W Users Manual	41
---------------------------	-----------

G

Graphics.....	7
Graphing Readings	28

H

Help.....	4
-----------	---

I

Installing FlukeView	1
Instrument Screen.....	7, 13
Instrument Setup.....	10, 32
Interface Cable.....	39
Interface Specifications	38

K

K-factor.....	25
---------------	----

L

Logging Readings	28
------------------------	----

M

Meta-graphics	8
More Windows on a Page.....	34
Multiple readings in one window	28
Multiple Transfers.....	13, 19, 26

O

Online Help	4
Overwrite Existing Window	27, 28

P

Peak	25
Print Preview.....	34
Print Setup.....	34
Printing Windows.....	34
Print-Preview Window	34

R

Ratio 4:3	15
Read Instrument Setups.....	32
Readings	9, 28
Readings Window	30
Replay screens	15
Replay waveforms	22
RMS.....	25
RS-232 Cable	39

S

Saving Windows to a File	36
Scaling	21, 24
Screen	7, 13
Screen Window	14
Selection Window.....	36
Send Instrument Setups.....	32
Serial Cable	39
Setup	10, 32
Setup Window	32
Spectrum	24
Spectrum Window	25
Spreadsheet	31

T

Test Report.....	11
THDf	25
THDr	25
Titles	13, 16, 19, 23, 24, 29, 32
Tools.....	24
Type of Readings	28

SW90W Users Manual	43
---------------------------	-----------

V

Vector-graphics	8
View - Active Waveform	24
View - Replay	16, 23

W

Waveform.....	8, 18, 28
Waveform Window.....	20
What's This help	4
Window	
Waveform	20
Window	
Print Preview	34
Readings	30
Screen	14
Selection.....	36
Setup	32
Spectrum	25
Wordprocessor.....	17
Worksheet.....	31

X

X At 0%	20, 30
X Scale	20, 30
X Size	20, 30

Y

Y At 50%	20, 30
Y Scale	20, 30

Z

Zooming	21
---------------	----