

FRAME CAPTURE VIEWER

Instruction Manual

Read this instruction manual carefully, and use the product safely.

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1. SPECIFICATIONS

1.1 General

This software is an application for loading frame data (.frm files) saved using the frame capture function of a LEADER MULTI MONITOR into a PC and performing data analysis.

1.2 Features

- Single frame data of video signals is displayed two-dimensionally with lines and samples.
- You can specify any line or sample number and display that point.
- Data searching as possible in frame data.
- You can search for errors in frame data detected by the MULTI MONITOR.

1.3 Applicable Data

Frame data saved using the following frame capture function

LV5600, LV7600, LV 5490, LV 5770A, LV 5770, LV 5800A, LV 5800

1.4 Operating Environment

Windows 10, Windows 7 Professional (32 bit/64 bit)

1.5 About the Software

- LEADER ELECTRONICS CORP. holds all copyrights to the software.
- Software installation is to be performed under the customer's responsibility.
- It is prohibited to decompile, disassemble, decrypt, extract, or otherwise reverse engineer the software.
- You may not copy, modify, or distribute the software to third parties, or use it for commercial purposes (rental, pseudo rental, selling to third parties, and so on).
- The software is subject to change without prior notice.

2. INSTALLATION AND UNINSTALLATION

2.1 Installation

- 1. Run the installation program "FrameCaptureViewerInstaller v*.**.msi".
- 2. Click Next.



Figure 2-1 Installation 1

3. Set the installation destination, and click Next.



Figure 2-2 Installation 2

4. Click Next.



Figure 2-3 Installation 3

5. Click Close to finish the installation.

🖟 FrameCaptureViewer v1.46		-	-		×
インストールが完了しました	• 0				
FrameCaptureViewer v1.46 は正しくイ 終了するには、[閉じる]をクリックしてく	ンストールされまし ださい。	t			
Windows Update で、NET Framework	の 重要な更新が あ キャンセル	5るかどうかを確認 く 戻る(B)	20741	ごさい。 閉じる((2

Figure 2-4 Installation 4

2.2 Uninstallation

Under Programs and Features in Control Panel, select "FrameCaptureViewer v *.**", and click Uninstall.



Figure 2-5 Uninstallation

3. HOW TO USE

3.1 Starting the Program

In the installation folder, open "FrameCaptureViewer.exe". When a file selection dialog box opens, select the frame data you want to view, and click Open.

目開く					×
\leftarrow \rightarrow \checkmark \uparrow \square « LV7600	_USER	> BMP	✓ Č BMPØ)検索	م
整理 ▼ 新しいフォルダー				===	• 🔳 🕐
🎝 ミュージック	^	名前 ^	更新日時	種類	サイズ
🏪 Windows (C:)		20190722102145_A.frm	2019/07/22 10:21	FRM ファイル	38,672 KB
👝 Recovery Image (D:)	÷.,	20190722105926_A.frm	2019/07/22 10:59	FRM ファイル	38,672 KB
👝 USB ドライブ (F:)		20190722110649_A.frm	2019/07/22 11:06	FRM ファイル	38,672 KB
LV7600_USER					
BMP	~ <				>
ファイル名(<u>N</u>): 20	190722110649_A.frm	∽ Frame	:CaptureFile (*.1 ∎<(<u>O</u>)	irm) 〜 キャンセル

Figure 3-1 File selection dialog box

The main window appears.

Frame	Capture Vie	wer -[20190)722102145_	A.frm]				-		×
File(<u>F</u>)	View(<u>V</u>)	Tools(<u>T</u>)	Help(<u>H</u>)							
i 🗃 📰	≣ ⊒ [M 🖌 🗏	Þ 💡						
LINE No.	SAMPLE	< 1920 >	< 1921 >	< 1922 >	< 1923 >	< 1924 >	< 1925 >	< 1926 >	< 1927 >	< 1! 🔥
	Y	3FF	000	000	2D8	204	200	2BB	23C	C
LINET	Cb/Cr	3FF	000	000	2D8	204	200	2F7	1E8	C
LINE2	Y	3FF	000	000	2D8	208	200	1B8	26B	C
LINEZ	Cb/Cr	3FF	000	000	2D8	208	200	1F4	1BF	C
LINE2	Y	3FF	000	000	2D8	20C	200	2B9	259	C
LINES	Cb/Cr	3FF	000	000	2D8	20C	200	2F5	18D	2
	Y	3FF	000	000	2D8	210	200	1BE	2C4	C
LINE4	Cb/Cr	3FF	000	000	2D8	210	200	1F2	110	C
LINES	Y	3FF	000	000	2D8	214	200	2BF	2F6	C
LINES	Cb/Cr	3FF	000	000	2D8	214	200	2F3	122	C
LINES	Y	3FF	000	000	2D8	218	200	1BC	2A1	C
LINEO	Cb/Cr	3FF	000	000	2D8	218	200	1F0	175	2
LINEZ	Y	3FF	000	000	2D8	21C	200	2BD	293	C
LINE7	Cb/Cr	3FF	000	000	2D8	21C	200	2F1	147	C
	Y	3FF	000	000	2D8	220	200	1B2	19A	C
LINEO	Cb/Cr	3FF	000	000	2D8	220	200	1FE	24E	2
	Y	3FF	000	000	2D8	224	200	2B3	1A8	C
LINES	Cb/Cr	3FF	000	000	2D8	224	200	2FF	27C	C
LINE10	Y	3FF	000	000	2D8	228	200	1B0	1FF	C
LINE TO	Cb/Cr	3FF	000	000	2D8	228	200	1FC	22B	C
LINE11	Y	3FF	000	000	2D8	22C	200	2B1	1CD	C
	Cb/Cr	3FF	000	000	2D8	22C	200	2FD	219	C
	Y	RE	000	000	208	230	200	186	150	1 <u>0</u> *
<										>
Format: 38	340×2160/59	9.94P YCI Di	splay : Seria	l < Link 1 >				2019	/07/22	10:13

Figure 3-2 Main window

3.2 Closing the Program

From the File menu, select Exit. Or, click 🔀 in the upper right of the main window.

4. USER INTERFACE

4.1 File menu

Click the File menu or press Alt+F to display the File menu.

File	(F)	
	Open(O)	Alt+O
	Export	
	Exit(X)	

Figure 4-1 File menu

• Open

A file selection dialog box opens where you can select and load frame data.

• Export

Loaded frame data is exported in CSV format. Under the General tab in the Option window, selecting the "Export with Decimal" check box causes the data to be output in decimal notation. If you do not select the check box, data is output in hexadecimal notation.

• Exit

Closes the application.

4.2 View Menu

Click the View menu or press Alt+V to display the View menu.



Figure 4-2 View menu

• Data align

E.

Select the data display method in cells.

View	w(V)	_		
	Data align(A)		Left(L)	Left(L) :
	File information(F)	~	Center(C)	Data is displayed left-justified.
	Line/Sample iump(G)		Right(R)	Center(C) :
	Data search(S)			Data is displayed center-justified.
				Right(R) :
~	Tool Bar(T)			Data is displayed right-justified.
~	Status Bar(B)			

Figure 4-3 Data align menu

• File information

A file information window opens, and information about the loaded frame data is displayed.

File Inf	formation		×
File	e Path :	F:\LV7600_USER\BMP	
File	e Name :	20190722102145_A.frm	
File	e Size :	39600064 byte	
Fo	ormat :	3840×2160/59.94P YCbCr(422) 10bit 3G-A QUAD SEQ.	
Lin	ne:	1125	
Sa	ample :	2200	
		ОК	

Figure 4-4 File information window

• Line/Sample jump

A line/sample jump window opens. You can specify a line or sample and jump to that point.

.ine/Sample ju	mp	×
Input Line :	1	Jump(<u>G</u>)
Sample :	1920	Close

Figure 4-5 Line/sample jump window

• Data search

A data search window opens.

If you select Direction Up and click Search, data is searched from the current cell toward smaller line numbers.

If you select Direction Down and click Search, data is searched from the current cell toward larger line numbers.

Data search			×
Search Data(HEX) :	0x0000	~	Search(<u>S</u>)
Direction O Up Down	Result Line : Line1 (1) Sample : 1921		Close

Figure 4-6 Data search window

• Tool Bar

Shows or hides the toolbar.

• Status Bar

Shows or hides the status bar.

4.3 Tools Menu

Click the Tools menu or press Alt+T to display the Tools menu.

To	ols(<u>T</u>)	Tools(T)
	Options(<u>O</u>)	Options(O)
	Error search(<u>S</u>)	Error search(S)

Error search Disable

Error search Enable

Figure 4-7 Tools menu

• Options - General tab

Set the frame data display method and error detection.

. only Color			
Display			1)
SINGLE		20.0.00	1)
SD/HD/3G-A	3G-B-DL	-3G-B-DS	
	O Stream1	O S1 Serial	
Component	O Stream2	O SI Component	
	U Stream1/2	O S2 Serial	
		U S2 Component	
DUAL			
HD			
◯ Link A ◯ Link B	◯ Link A/B		
Link 3G-A	3G-B-DL	3G-B-DS	
Link 3G-A	3G-B-DL	- 3G-B-DS	
Link 3G-A 1 Serial 2 Componen	3G-B-DL O Stream1 t O Stream2	3G-B-DS S1 Serial S1 Component	
Link 3G-A 1 Serial 2 Componen	3G-B-DL Stream1 Stream2 Stream1/2	3G-B-DS S1 Serial S1 Component S2 Serial	
Link 3G-A 1 Serial 2 Componen	t Ostream1 Stream2 Stream1/2	3G-B-DS S1 Serial S1 Component S2 Serial S2 Component	□ Line/Sample Header Change
Link 3G-A 1 Serial 2 Componen	3G-B-DL Stream1 Stream2 Stream1/2	3G-B-DS S1 Serial S1 Component S2 Serial S2 Component	☐ Line/Sample Header Change ☑ GridDisplay ————————————————————————————————————
Link 3G-A 1 Serial 2 Componen	3G-B-DL Stream1 Stream2 Stream1/2	3G-B-DS S1 Serial S1 Component S2 Serial S2 Component	☐ Line/Sample Header Change ☑ GridDisplay ──── ☑ Export with Decimal ───
Link 3G-A 1 2 Componen QUAD Link	3G-B-DL Stream1 Stream2 Stream1/2 HD/3G-A	3G-B-DS S1 Serial S1 Component S2 Serial S2 Component	Line/Sample Header Change GridDisplay Export with Decimal
Link 3G-A 1 Serial 2 Componen QUAD Link I 2 2	AG-B-DL Stream1 Stream2 Stream1/2 HD/3G-A Serial	3G-B-DS S1 Serial S1 Component S2 Serial S2 Component 3G-B-DL Stream1	Line/Sample Header Change GridDisplay Export with Decimal ErrorDetection
Link 3G-A Serial Componen	HD/3G-A BD/2 BD	3G-B-DS S1 Serial S1 Component S2 Serial S2 Component 3G-B-DL Stream1 Stream2	☐ Line/Sample Header Change ☑ GridDisplay — — — — — — — — — — — — — — — — — — —
Link 1 2 Componen QUAD Link 1 2 3 4	AGGENERAL AGGENERAL	3G-B-DS S1 Serial S1 Component S2 Serial S2 Component 3G-B-DL Stream1 Stream2 Stream1/2	 □ Line/Sample Header Change ☑ GridDisplay ☑ Export with Decimal □ ErrorDetection □ ErrorDetection

Figure 4-8 Options window (General tab)

1) Display

Select the method or displaying the loaded frame data using (option buttons). Note that for the following frame data, some items are not selectable.

Ctandard	Sampling structure/	Items that are
Standard	quantization accuracy	not selectable
3G-SDI Level A	YCbCr (422) / 10bit	Component
3G-SDI Level B – DL	YCbCr (422) / 10bit	Stream 1/2
HD DUAL LINK	YCbCr (422) / 10bit	Link A/B
3G-SDI Level A QUAD LINK	YCbCr (422) / 10bit	Component
3G-SDI Level B QUAD LINK	YCbCr (422) / 10bit	Stream 1/2

* Displayed as HD QUAD LINK on the LV5600 or LV7600 6G.

* Displayed as 3G-SDI Level A QUAD LINK on the LV5490SER06, LV5600, or LV7600 12G.

2) Line/Sample Header Change

Changes the vertical and horizontal display of frame data.

If this check box is not selected, line numbers are displayed in the vertical direction and the samples in the horizontal direction.

If this check box is selected, samples are displayed in the vertical direction and the line numbers in the horizontal direction.

3) GridDisplay

Set whether to display grid lines.

4) Export with Decimal

Set the format of the data output by using Export of the File menu. If this check box is selected, the data is output in decimal notation. Otherwise, it is output in hexadecimal notation.

5) ErrorDetection

Frame data errors detected by the product are displayed in the specified color.

• Options - Font/Color tab

Set data display parameters, such as the font, font size, text color, and background color.

Option		×
General Font/Color		
General Font/Color Font Name : Arial Size : 9 Sample ABCXYZabcxyz 6)	Line/Sample Header TextColor : BackFirstColor : BackSecondColor : 7)	Line/Sample Data TextColor : BackFirstColor : BackSecondColor : 8)
		OK Cancel

Figure 4-9 Options window (Font/Color tab)

6) Font

Set the font and font size of the data displayed in the main window.

7) Line/Sample Header

Set the background color and font color used in the header display area containing LINE No. and SAMPLE of the main window.

8) Line/Sample Data

Set the background color and font color used in the frame data display area of the main window.

Error search

This function is enabled when the ErrorDetection check box is selected under Options. If you select Direction Up and click Search, error data is searched from the current cell toward smaller line numbers.

If you select Direction Down and click Search, error data is searched from the current cell toward larger line numbers.

Direction	uğuğuğuğuğuğuğuğ				
O Up O Down	Search(<u>S</u>)				
	Close				
Result					
Line : Line3					
Sample : 193	2				

Figure 4-10 Error search window

4.4 Help Menu

Click the Help menu or press Alt+H to display the Help menu.

Help(H)	
Abou	ut FrameCapture Viewer(A)

Figure 4-11 Help menu

• About FrameCapture Viewer

A version view window opens, and you can view the application version.



Figure 4-12 Version view window

4.5 Tool Bar

The behavior when each button is clicked is described below.

	Frame	Capture Vie	wer -[20190	722102145_	A.frm]				—		×		
	File(<u>F</u>)	View(<u>V</u>)	Tools(<u>T</u>)	Help(<u>H</u>)									
	i 🎽 🃰	≣ ⊒ [b II d	4 🗾 🖩	Þ ?								
	LINE No.	SAMPLE	< 1920 >	< 1921 >	< 1922 >	< 1923 >	< 1924 >	< 1925 >	< 1926 >	< 1927 >	< 1! 🔺		
	LINE4	Y	3FF	000	000	2D8	204	200	2BB	23C	C		
	LINET	Cb/Cr	3FF	000	000	2D8	204	200	2F7	1E8	C		
	LINE2	Y	3FF	000	000	2D8	208	200	1B8	26B	C		
		Cb/Cr	3FF	000	000	2D8	208	200	1F4	1BF	C		
	LINE3	Y	3FF	000	000	2D8	20C	200	2B9	259	C		
	LINES	Cb/Cr	3FF	000	000	2D8	20C	200	2F5	18D	2		
		Y	3FF	000	000	2D8	210	200	1BE	2C4	C		
	Elive 4	Cb/Cr	3FF	000	000	2D/8	210	200	1F2	110	C		
	LINE5	Y	3FF	000	000	2D8	214	200	2BF	2F6	C		
	Entes	Cb/Cr	3FF	000	000	2D8	214	200	2F3	122	C		
	LINE6	Y	3FF	000	000	2D8 \	218	200	1BC	2A1	C		
		Cb/Cr	3FF	000	000	2D8	218	200	1F0	175	2		
	LINE7	Y	3FF	000	000	2D8	21C	200	2BD	293	C		
1		Cb/Cr	3FF	000	000	2D8	\ 21C	200	2F1	147	C		
	LINE8	Y	3FF	000	000	2D8	220	200	1B2	19A	C		
		Cb/Cr	3FF	000	000	2D8	220	200	1FE	24E	2		
	LINE9	Y	3FF	000	000	2D8	224	200	2B3	1A8	C		
1	2	Cb/Cr	3FF	000	000	2D8	224	200	2FF	27C	C		
	LINE10	Y	3FF	000	000	2D8	228	200	1B0	1FF	C		
	Enve to	Cb/Cr	3FF	000	000	2D8	228	200	1FC	22B	C		
	LINE11	Y	3FF	000	000	2D8	22C	200	2B1	1CD	C		
	CINC II	Cb/Cr	3FF	000	000	2D8	22C	200	2FD	219	0		
	<	Ŷ	3FF	000	000	2D8	230 \	200	186	150	>		
	Format: 38	40×2160/59	9.94P YCI Di	splay : Serial	l < Link 1 >			\backslash	2019	/07/22	10:13		
	(-1) (-3) (-5)												
	≩∣≣	≣		b I .	#	ø		?	, ,				
				\setminus	— 4)			— 7)					
		\	- 2)			<u> </u>	— 6)						

- 1) A file selection dialog box appears.
- 2) Set the data display method in cells.
- 3) A file information window appears.
- 4) A line/sample jump window appears.
- 5) A data search window appears.
- 6) An option window appears.
- 7) An error search window appears. (*1)
- 8) A version view window appears.
- *1 You can click this when ErrorDetection is enabled.

4.6 Status Bar

Format, display, and the current date and time are indicated.

📕 Frame	Capture Vie	wer -[20190	0722110649_	A.frm]										-		×
File(<u>F</u>)	View(<u>V</u>)	Tools(<u>T</u>)	Help(<u>H</u>)													
i 🎽 📰	≣≣[🧓 🗐 - é	M 🖌 🗌	Þ 💡												
LINE No.	SAMPLE	< 1920 >	< 1921 >	< 1922 >	< 1923 >	< 1924 >	< 1925 >	< 1926 >	< 1927 >	< 1928 >	< 1929 >	< 1930 >	< 1931 >	< 1932 >	< 1933 >	< ^
LINE1	Y	3FF	000	000	2D8	204	200	2BB	23C	040	040	040	040	040	040	
LINET	Cb/Cr	3FF	000	000	2D8	204	200	2F7	1E8	200	200	200	200	200	200	
LINE2	Y	3FF	000	000	2D8	208	200	1B8	26B	040	040	040	040	040	040	
LINEZ	Cb/Cr	3FF	000	000	2D8	208	200	1F4	1BF	000	3FF	3FF	2E7	2E4	218	
LINES	Y	3FF	000	000	2D8	20C	200	2B9	259	040	040	040	040	040	040	
LINES	Cb/Cr	3FF	000	000	2D8	20C	200	2F5	18D	000	3FF	3FF	2E7	1E5	218	
	Y	3FF	000	000	2D8	210	200	1BE	2C4	040	040	040	040	040	040	_
CINC4	Cb/Cr	3FF	000	000	2D8	210	200	1F2	110	000	3FF	3FF	2E7	1E6	218	
LINES	Y	3FF	000	000	2D8	214	200	2BF	2F6	040	040	040	040	040	040	
LINES	Cb/Cr	3FF	000	000	2D8	214	200	2F3	122	200	200	200	200	200	200	
LINES	Y	3FF	000	000	2D8	218	200	1BC	2A1	040	040	040	040	040	040	
LINEO	Cb/Cr	3FF	000	000	2D8	218	200	1F0	175	000	3FF	3FF	2E7	2E7	218	
LINET	Y	3FF	000	000	2D8	21C	200	2BD	293	040	040	040	040	040	040	
LINE7	Cb/Cr	3FF	000	000	2D8	21C	200	2F1	147	000	3FF	3FF	2E7	2E8	218	
LINEO	Y	3FF	000	000	2D8	220	200	1B2	19A	040	040	040	040	040	040	
LINEO	Cb/Cr	3FF	000	000	2D8	220	200	1FE	24E	200	200	200	200	200	200	
	Y	3FF	000	000	2D8	224	200	2B3	1A8	000	3FF	3FF	1E3	200	10B	
LINES	Cb/Cr	3FF	000	000	2D8	224	200	2FF	27C	000	3FF	3FF	2E7	1E9	218	
LINE10	Y	3FF	000	000	2D8	228	200	1B0	1FF	000	3FF	3FF	241	101	104	
LINE IU	Cb/Cr	3FF	000	000	2D8	228	200	1FC	22B	000	3FF	3FF	241	101	104	
LINEA	Y	3FF	000	000	2D8	22C	200	2B1	1CD	040	040	040	040	040	040	
LINETT	Cb/Cr	3FF	000	000	2D8	22C	200	2FD	219	000	3FF	3FF	2E7	2EB	218	
	Y	3FF	000	000	2D8	230	200	1B6	150	040	040	040	040	040	040	- ×
<														_		>
Format : 38	340×2160/5	9.94Р ҮСЬС	r(422) 10bit	3G-A QUAD	SEQ. Dis	play : Serial	< Link 1 >							2019/0	07/22 1	5:32

Format indication

Display indication

Current date and time indication

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