grass valley

VF 7-100X

7-INCH NATIVE HD VIEWFINDER FOR LDX 100 SERIES

User's Guide

13-00093-000

2020-12-24

FCC Compliance

In order to comply with FCC/CFR47: Part 15 regulations, it is necessary to use high-quality, triple-screened Media or Monitor cable assemblies with integrated ferrite suppression at both ends.

Patent Information

This product may be protected by one or more patents.

For further information, please visit: www.grassvalley.com/patents/

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Title	VF 7-100X User's Guide
Part Number	13-00093-000
Revision	2020-12-24, 11:31

Cautions for LCD and OLED/TFT Displays

⚠ Excessive usage may harm your vision. Rest for 10 minutes for every 30 minutes of usage. If the display glass is broken, handle glass fragments with care when disposing of them. If any fluid leaks out of a damaged glass cell, be careful not to get the liquid crystal fluid in your mouth or skin. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water. Never swallow the fluid. The toxicity is extremely low but caution should be exercised at all times.

Environmental Information

European (CE) WEEE directive.

This symbol on the product(s) means that at the end of life disposal it should not be mixed with general waste.

Visit www.grassvalley.com for recycling information.

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If you have questions about Grass Valley environmental and social involvement (WEEE, RoHS, REACH, etc.), please contact us at environment@grassvalley.com.

Safety and EMC Standards

This equipment complies with the following standards:

Safety Standards

CE

Information Technology Equipment - Safety Part 1

IEC62368-1:2018

Safety of Information Technology Equipment Including Electrical Business Equipment.

EMC Standards

This unit conforms to the following standards:

EN55032:2012 + C2:2013 (Class A)

Electromagnetic Compatibility of multimedia equipment - Emission requirements

EN55103-2:2009 (Environment E2)

Electromagnetic Compatibility, Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2. Immunity

⚠️ **WARNING**

This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

FCC / CFR 47:Part 15 (Class A)

Federal Communications Commission Rules Part 15, Subpart B

Caution to the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

following the provisions of:

- the RED directive 2014/53/EU

☞ **Note**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

⚠ **WARNING**

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Table of Contents

1 Introduction

Overview

The VF 7-100X is a high quality, flat panel full HD color viewfinder. Its light-weight construction, multi-format compatibility and its high brightness performance make this viewfinder a perfect match for EFP/portable, studio and outside broadcast applications.

The VF 7-100X viewfinder is designed to work with Grass Valley's LDX 100 Series cameras and accommodates all required HD frame rates and video modes. The supplied sun hood provides excellent shading fit for outdoor situations while its 7-inch diagonal screen size makes fast and accurate focussing easy.

Compact design

The compact design allows for great operator flexibility with wide panning and tilting angles.

Camera operation

Due to its convenient user interface and built-in text generator, the viewfinder allows for easy access to the camera system menu.

Zoom function

The viewfinder picture can be zoomed in for precise focussing while the full picture overview is shown in a small overlay area.

Color adjustment

Without influencing the main video signal the viewfinder's color temperature can be adjusted to suit the operator's personal preference.

Assignable buttons

Three user buttons are provided that can be assigned to a range of operational functions, customizing the VF 7-100X to your personal preferences.

Locations of indicators and controls

Front Panel View
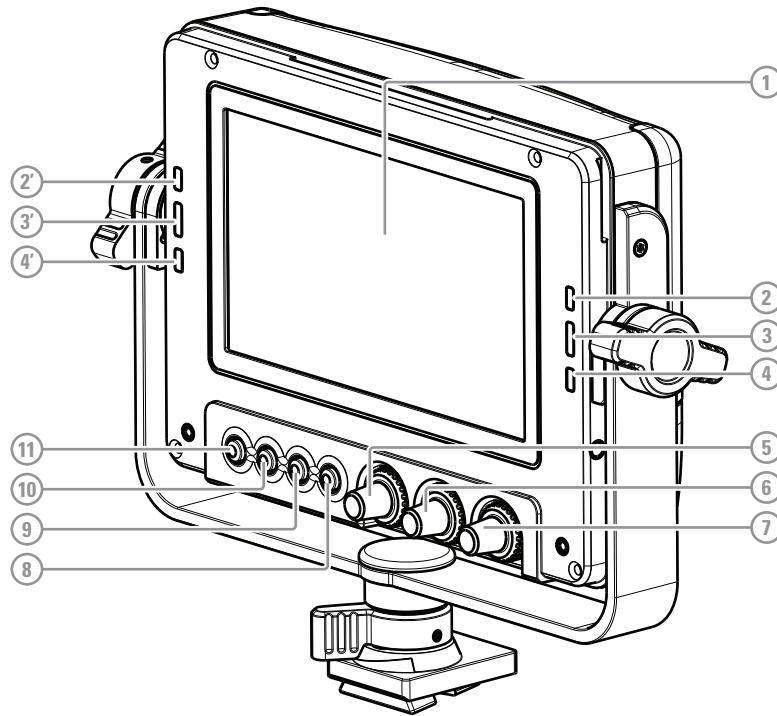
① Display area

Active viewfinder display area. Displays live video, indicators and text overlay.

② ISO indicators

These yellow indicators light when the camera is in ISO status.

③ On-Air indicators

These red indicators light when the camera is On Air.

④ Call indicators

These green Call indicators light when a Call signal is activated.

⑤ Peaking

Controls the level of peaking that is applied to the viewfinder signal.

⑥ Brightness

Controls the brightness level of the display.

⑦ Contrast

Controls the contrast level of the display.

⑧ User button 3

Assignable user button 3, illuminated.

⑨ User button 2

Assignable user button 2, illuminated.

⑩ User button 1

Assignable user button 1 illuminated.

⑪ Menu button

Access to viewfinder or camera menus and button assignment menu.

Installation

Mounting the viewfinder

To mount the viewfinder on top of the camera adapter proceed as follows:

1 Switch off the camera.

2 Slide the V-block of the viewfinder onto the quick mount block on the camera adapter until it clicks firmly into place:

release lever

Quick mount block

V-block
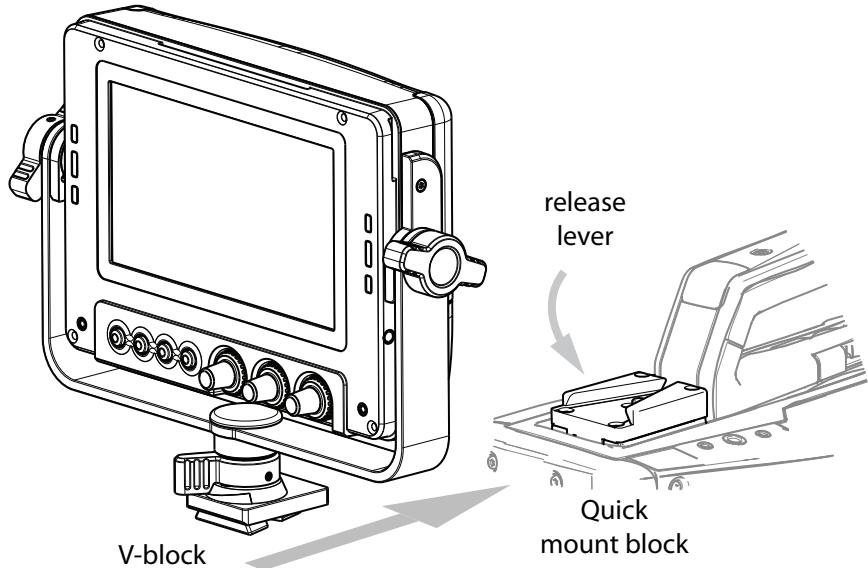
3 Connect the viewfinder flying lead cable to the viewfinder connector on the camera head. Guide the cable along the top of the camera body.

To release the viewfinder proceed as follows:

1 Switch off the camera.

2 Disconnect the viewfinder cable from socket on the camera head.

3 Press the release lever and slide the viewfinder out of the quick mount block.

Attaching accessories

Sunhood

A short sunhood is supplied for outdoor use. To attach the sunhood to the viewfinder proceed as follows:

1 Make sure that the viewfinder is mounted and that its position is fixed.

2 Lift the sunhood above the viewfinder and lower it until the hooked edges at the sides touch the sides of the viewfinder.

thumb screw

thumb screw
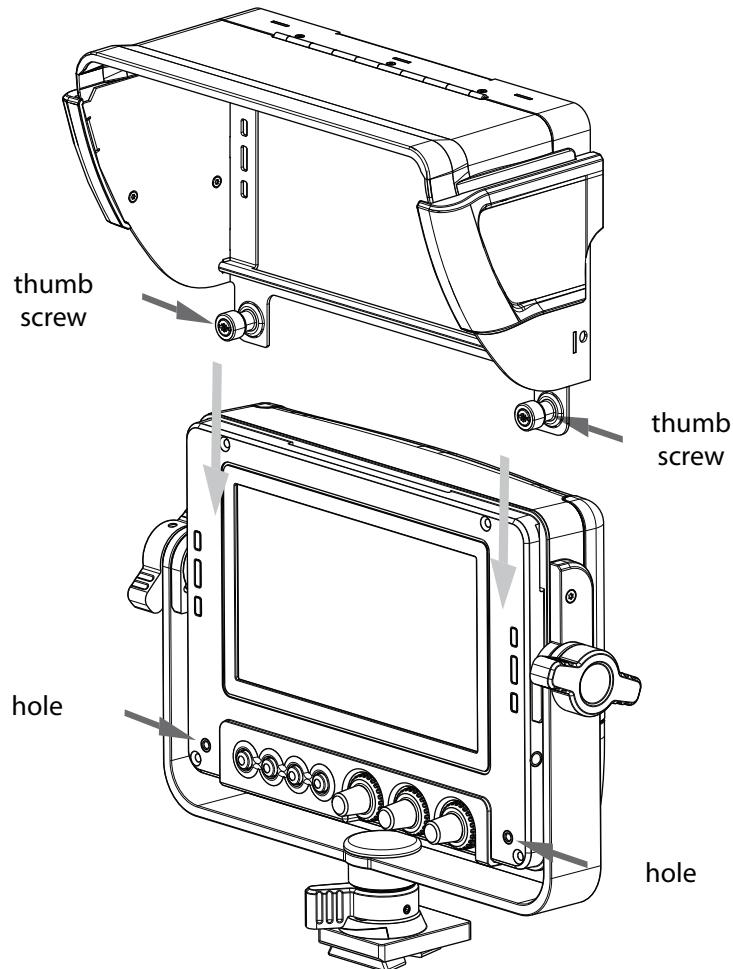
hole

hole

3 Slide down the sunhood until the thumb screws are level with the holes in the viewfinder.

4 Tighten both thumbscrews with your fingers until they are finger-tight.
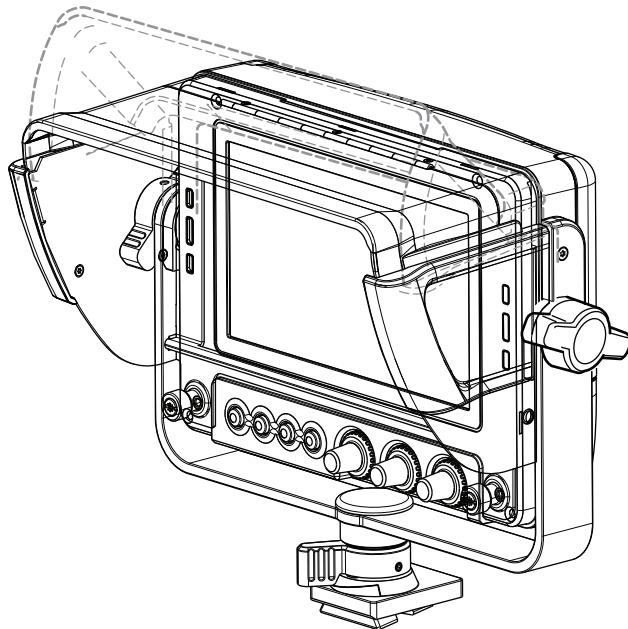
Note: Draw out and tilt the upper half of the sunhood to get a larger vertical viewing angle.

IMPORTANT: Do not hold the sunhood to carry the viewfinder as it may damage the viewfinder or sunhood.

LDK 6400/20 Identification numbers (option)

A set of camera identification numbers (1 to 15) is available as an option. To mount a number remove the blind number plate from the back panel of the viewfinder and click the number of choice into the holes in the recess.

Adjusting the position

Tilting

The viewfinder can be tilted over a vertical angle of 57° down and 60° up:

1 Loosen both rotation knobs with two hands in a contrary direction.
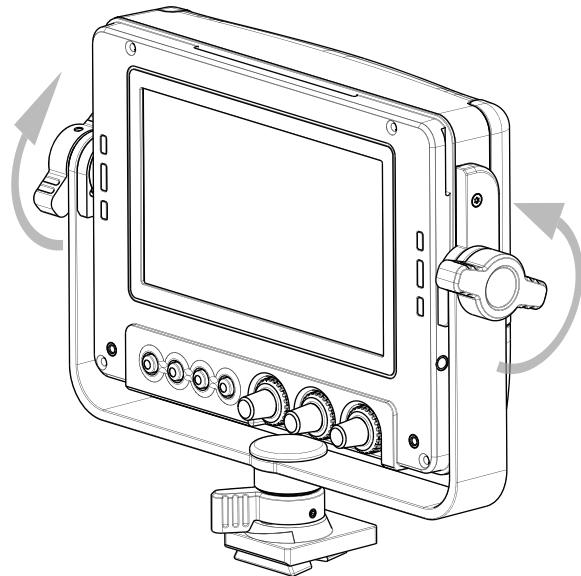
2 Tilt the viewfinder to the desired angle and fasten the rotation knobs.
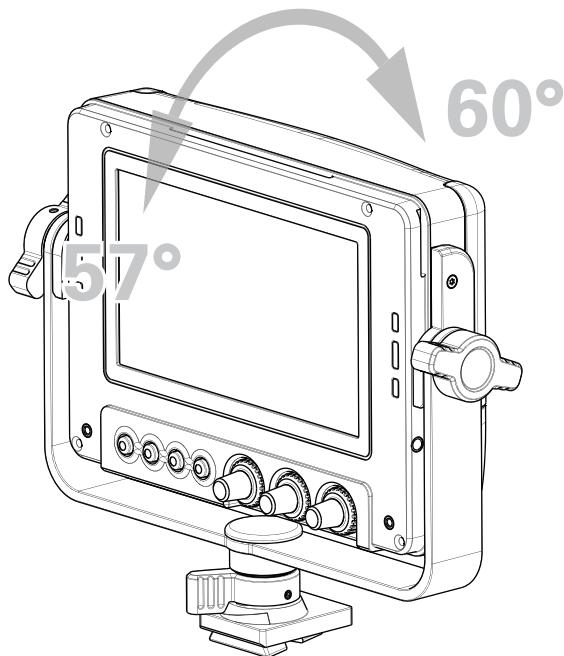
Panning

The viewfinder can be panned over an angle of 70° to the right and 90° to the left:

1 Loosen the rotation locking wheel.
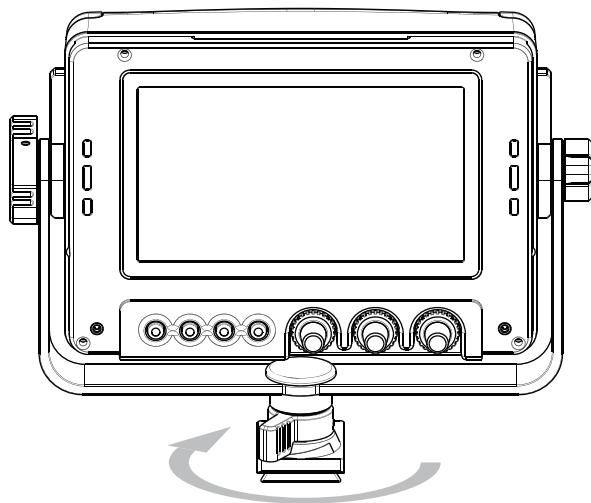
2 Rotate the viewfinder to the desired angle.

90°   **70°**
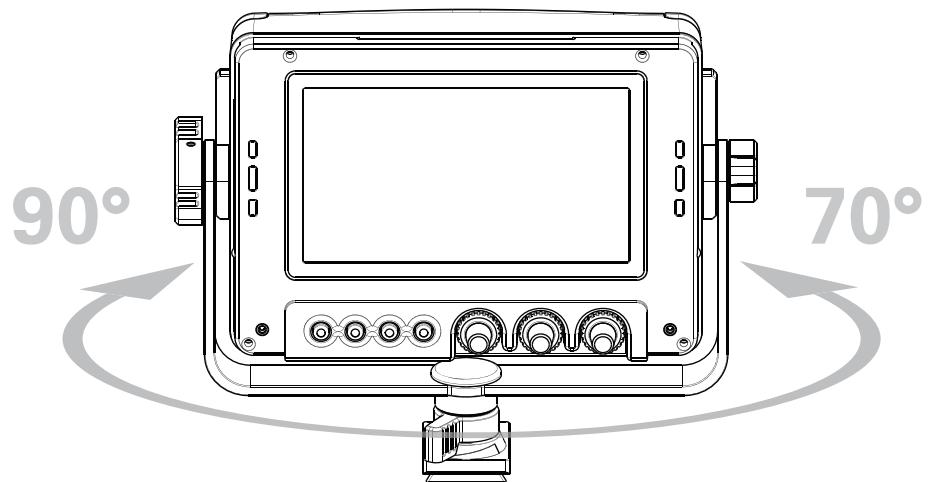
3 Fasten the rotation locking wheel to fix the position.

Note: Pan the viewfinder completely to the left to set up a large lens (e.g. for back focus adjustment) while still observing the viewfinder image.

Operation

Controls

Buttons

The front panel of the viewfinder holds the operational controls (buttons and rotaries):

| MENU | BOX1 | MONO | ZOOM | Pk:20 | Br:50 | Cn:99 |

menu
button
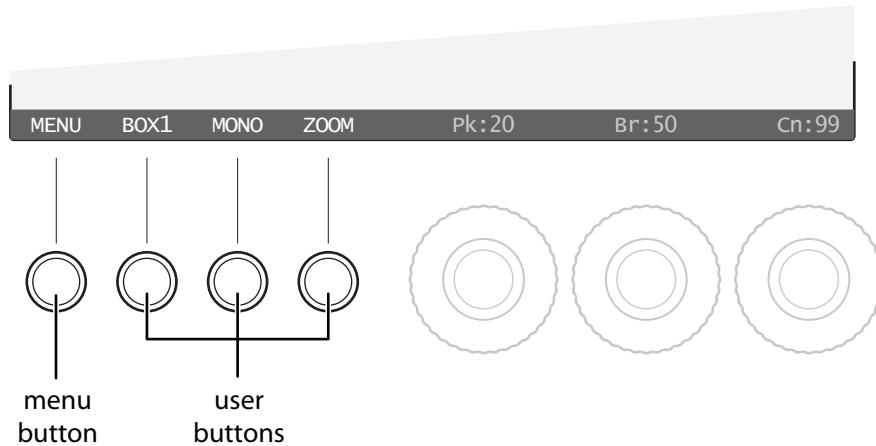
user
buttons

Menu button

This button gives access to the camera system menu, the viewfinder setup menu and the button assignment menu. Refer to Menu operation, on page 15 for a detailed description of these menus.

User buttons

Three buttons can be assigned to different operational functions. Their default functions are: Box1, Mono and Zoom. Refer to Viewfinder functions, on page 13for more information about these functions and other functions that can be assigned.

The user buttons are illuminated for easy operational use in dark invironments.

Rotary controls

Adjust the viewfinder to your personal preference using the rotary controls:

| | | | | Pk:50 | | Br:50 | | Cn:50 |
| MENU | BOX1 | MONO | ZOOM | | | | | |

peaking   brightness   contrast
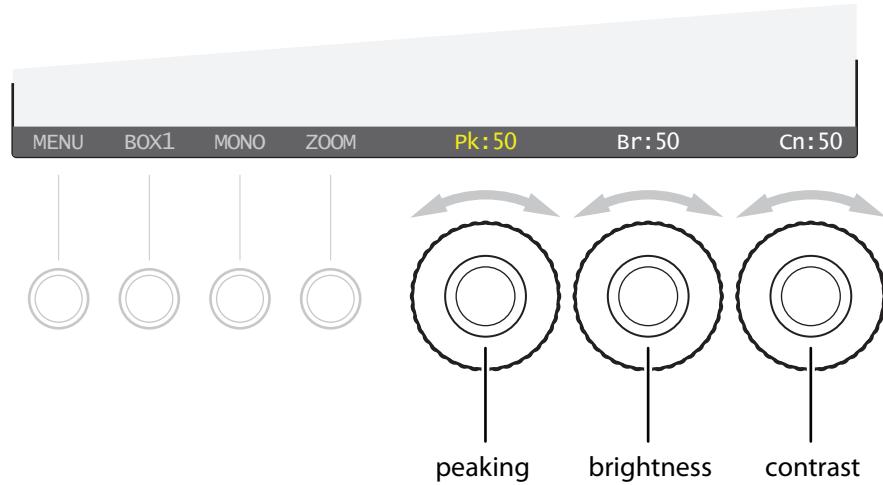
Peaking control

Controls the level of peaking that is applied to the viewfinder signal. Peaking makes the edges of the image look sharper. Turn the rotary control clockwise to increase peaking. The adjustment range is from 0 to 99 and its default value is **20**.

> Note: Peaking level is different for Main and External video: in most cases main video needs more peaking than external video so they can both be adjusted seperately. When External video is shown (switched by the camera) Peaking level value is yellow in stead of white.

> Note: When camera gain is set to high values, reduce peaking level for a better image.

Brightness control

Controls the brightness level of the viewfinder display. Turn the rotary control clockwise to increase brightness. The adjustment range is from 0 to 99 and its default value is **50**.

Contrast control

Controls the contrast level of the viewfinder display. Turn the rotary control clockwise to increase contrast. The adjustment range is from 0 to 99 and its default value is **99**.

Indicators

The following signalling indicators are available:

ISO indicators (yellow)

The yellow LEDs light to indicate that the camera is currently in ISO mode.

On Air indicators (red)

The red LEDs light to indicate that the camera is currently On Air.

Call indicators (green)

The green LEDs light to attract attention when a Call signal is activated.

> Note: The brightness level of the signalling indicators can be adjusted in the viewfinder setup menu. Refer to Indicator adjustment submenu (INDADJ), on page 20 for more information.

On screen signalling indicators

To further improve visibility under difficult viewing circumstances, the signalling indicators can also be superimposed on the viewfinder picture. Refer to the "Indicator adjustment submenu (INDADJ)" on page 25 for more information. The following options can be selected:

| OSsig = off | OSsig = top | OSsig = bottom |

Tally lights

The large red Tally lights at the back of the viewfinder light when the camera is On Air. These lights can be enabled or disabled in the viewfinder setup menu.

Brightness level of the Tally lights can be adjusted on an Operational or Master Control Panel or on a SuperXpander.

Viewfinder functions

Many operational functions can be assigned to the user buttons at the bottom of the viewfinder. Refer to "Button assign menu" on page 21 to read more about assigning user buttons.

Box 1 and 2

Two user definable framing boxes are available. Use the assignable button to switch a framing box on or off. These superimposed boxes are very useful to help focussing and framing while shooting. Three frame types (for each box) are available:

box type   line type   full type
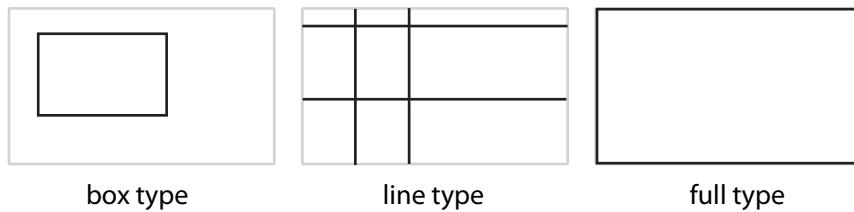
The framing boxes can be set up in the viewfinder setup menu. Refer to Box 1 and 2, on page 13 for more information.

Monochrome

Switches the viewfinder to monochrome mode. In the viewfinder setup menu the source (Y, R, G, B or -G) can be selected. When the camera color bar is switched on, the viewfinder returns to color mode. Note: this is a camera function (the signal is generated in the camera, not the viewfinder).

Ext 1

Press the button to show the external (return) video channel 1.

Ext 2

Press the button to show the external (return) video channel 2.

Zoom

Zooms in to the center of the image. The zoom factor depends on the selected camera video mode. Note: this is a camera function.

Text

Removes all text from the viewfinder image. This includes menu and message texts and camera indicators. Markers and cadres are not removed from the image. Press again to restore all text. Note: this is a camera function.

Tally

Enables of disables the red Tally lights at the back of the viewfinder—when disabled, the Tally lights never light, even when the camera is On Air.

Call

Press the button to activate the system Call function. The green Call indicators on the viewfinder light. Note: this is a camera function.

Menu operation

System menu

- Press the menu button to open the menus.
- Press the SYSTEM MENU button to open the camera system menu. The menu is superimposed on the viewfinder image.

```
        Menu off          Exec
      > Viewfinder          >>
        Lens                >>
        Video               >>
        Install             >>


        Root

MENU    DOWN      UP    SELECT
```
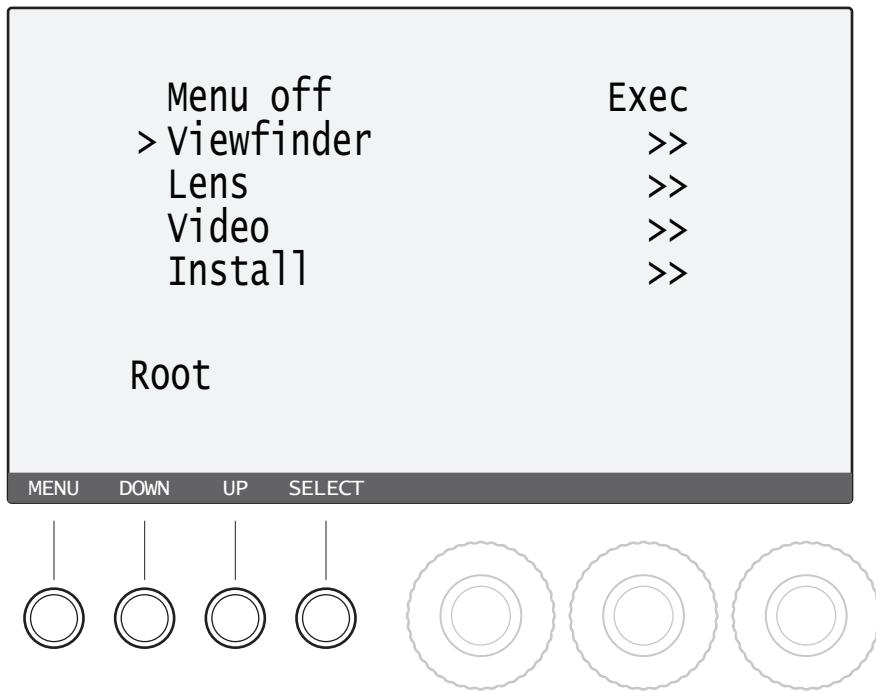
- Use the down, up and select buttons to navigate through the menu system.
- Press the MENU button to leave the camera system menu.

> Note: For more information on navigating the camera system menu and for a complete description of the menu contents, refer to the user's guide of your camera.

> Note: More viewfinder functions such as on-screen indicators and markers can be found in the viewfinder submenu of the camera system menu.

Viewfinder setup menu

Many viewfinder functions can be set in the viewfinder setup menu.

- Press the menu button to open the menus.
- Press the VF SETUP button to open the viewfinder setup menu. At the right side of the screen a list of functions is shown.

```
                                                              Diag
                                                           Config1
                                                    ►      Config2
                                                             Zoom
                                                            Color
                                                            Mono
                                                            Box2
                                                            Box1
   EXIT     Text    PkCol   IndLvl                       PREV ↑
   CONFIG   <Off>   <Whit>  <Med>                        NEXT ↓
```
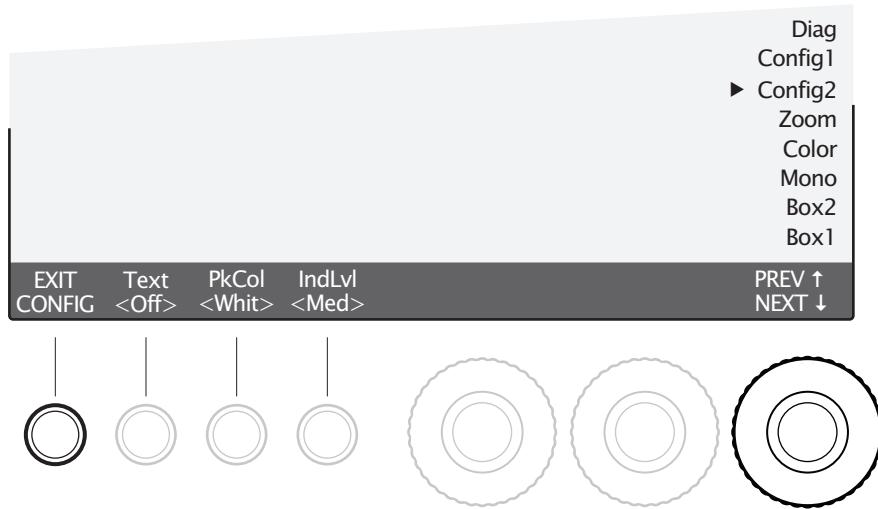
- Turn the rotary control at the right to navigate through the list of functions. An arrow indicates the selected function.
- Press the EXIT CONFIG button to leave the vf setup menu.

> Note: Hold the menu button and press a user button to quickly configure the function that is assigned to that button.

Button assign menu

Press the menu button to open the menus.

- Press the BUTTON ASSIGN button to open the button assign menu.
- Press a user button to change its switching mode: toggle between momentary (<Mom>) and alternating (<Alt>).
- Use the rotary controls to select a function for the selected user button.

```
   EXIT     Btn1    Btn2    Btn3      Func1       Func2       Func3
   ASSIGN   <Alt>   <Alt>   <Mom>     <Box>       <Mono>      <Call>
```
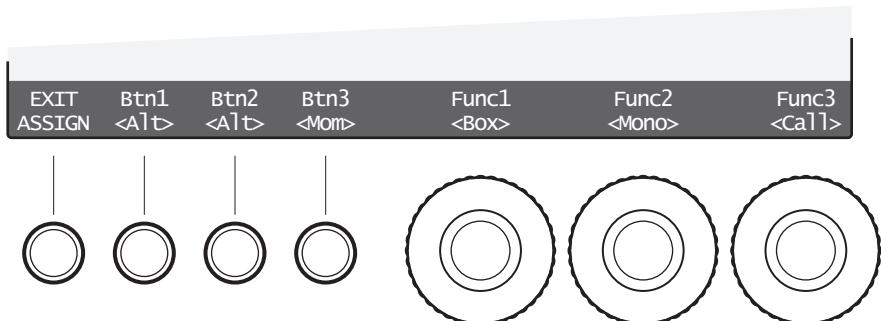
- Press the EXIT ASSIGN button to leave the button assign menu.

> Note: When a button is assigned to the Call function, its switching mode is automatically set to *momentary*.

Cleaning the viewfinder

> IMPORTANT: Always turn off the viewfinder before cleaning the screen.

> IMPORTANT: Never use cleaning solvents such as glass cleaner or soap to clean the screen.

Use a slightly damp soft cloth to clean the screen and then immediately a soft dry cloth (preferably micro fiber tissue - no paper products) to dry the screen. Wipe gently and do not apply strong pressure as this may damage the screen.

Viewfinder setup

Menu contents

The following tables show the items and functions that can be set up in the viewfinder setup menu.

Diagnostics menu (DIAG)

Button	Item	Value(s)	Description
Menu	EXIT	DIAG	Exits the diagnostics menu.
Button1	STATUS	INFO	Go to the viewfinder status information screen. More information can be found in the paragraph Viewfinder status information, on page 22.
Button2	Temp	nn C	Info: shows the current operating temperature (in degrees celsius.)
Button3	Format	<video format>	Info: shows the current video format.
Rotary1	Fan	**ok** | error	Info: shows fan status
Rotary2	Fan Speed	**ok** | error	Info: shows fan speed status
Rotary3	PREV ↑	NEXT ↓	Selects a menu from the list.

Configuration 1 menu (CONFIG1)

Button	Item	Value(s)	Description
Menu	EXIT	CONFIG	Exits the configuration 1 menu.
Button1	INDADJ	—	Push to enter the indicator adjustment submenu. Refer to Indicator adjustment submenu (INDADJ), on page 20.
Button2	Tally	**Ena** > Dis	Enables or disables red Tally lights
Button3	FACTORY	RESET	Resets the viewfinder's settings to their factory defaults. The factory defaults are shown in the value(s) column in **bold**.
Rotary1	—	—	—
Rotary 2	NoSignal	**Black**, Input, Bars	Selects signal when no camera signal is present.
Rotary 3	PREV ↑	NEXT ↓	Selects a menu from the list.

Configuration 2 menu (CONFIG2)

Button	Item	Value(s)	Description
Menu	EXIT	CONFIG	Exits the configuration 2 menu.
Button1	Text	On > **Off**	Turns viewfinder on-screen text on or off. Note: This is a camera system function.
Button2	Assign	**Hide** > Show	Shows or hides the bottom menu/assignment bar.
Button3	BtnLvl	**Off**, Low, Mid, High	Selects the brightness level for the viewfinder menu buttons.
Rotary1	PkCol	**Whit**, Red, Grn, Blue, Yell, Mgnt, Cyan, Purp	Selects the color of the viewfinder peaking signal.
Rotary2	Pk Fine	-20 ..50 **(00)**	Adjusts Fine Peaking Control
Rotary3	PREV ↑	NEXT ↓	Selects a menu from the list.

Indicator adjustment submenu (INDADJ)

Button	Item	Value(s)	Description
Menu	EXIT	INDADJ	Exits the indicator adjustment menu. Set indicator levels are stored in memory.
Button1	OSsig	**Off**, Top, Btm	Select the position of the On Screen Signalling indicators (top or bottom) or switch it off.
Button2	—	—	—
Button3	IndLvl	Low, **Med**, High, Cust	Selects the brightness level for the ISO, On-Air and Call indicators. Low, Med(ium) and High are fixed brightness levels, when option Cust is selected, the level can be adjusted using the rotaries. See below:
Rotary1	ISO	0..99 **(99)**	Adjusts the brightness level of the ISO (yellow) indicators (both left and right) when IndLvl = Cust.
Rotary2	OnAir	0..99 **(99)**	Adjusts the brightness level of the On-Air (red) indicators (both left and right) when IndLvl = Cust.
Rotary3	Call	0..99 **(99)**	Adjusts the brightness level of the Call (green) indicators (both left and right) when IndLvl = Cust.

Zoom menu (ZOOM)

Button	Item	Value(s)	Description
Menu	EXIT	ZOOM	Exits the zoom menu.
Button1	PIP	On > **Off**	Turns Picture in Picture function on or off.
Button2	PIPCol	**Whit**, Red, Grn, Blue, Yell, Mgnt, Cyan, Purp	Selects the color for the Picture in Picture image box.
Button3	—	—	—
Rotary1	—	—	—
Rotary2	—	—	—
Rotary3	PREV ↑	NEXT ↓	Selects a menu from the list.

Color menu (COLOR)

Button	Item	Value(s)	Description
Menu	EXIT	COLOR	Exits the color menu.
Button1	—	—	—
Button2	—	—	—
Button3	—	—	—
Rotary1	Satur	0..99 **(50)**	Sets the color saturation level.
Rotary2	ColTemp	3200K .. 9500K **(6500K)**	Sets the color temperature.
Rotary3	PREV ↑	NEXT ↓	Selects a menu from the list.

Monochrome menu (MONO)

Button	Item	Value(s)	Description
Menu	EXIT	MONO	Exits the monochrome menu.
Button1	Mono	On > Off	Turns monochrome mode on or off. Note: this is a camera system function.
Button2	Source	Y, R, G, B, -G	Selects a signal source for the monochrome image when mono mode is on. Note: this is a camera system function.
Button3	—	—	—
Rotary1	—	—	—
Rotary2	—	—	—
Rotary3	PREV ↑	NEXT ↓	Selects a menu from the list.

Box 1 setup menu (BOX1)

Button	Item	Value(s)	Description
Menu	EXIT	BOX1	Exits the box1 menu.
Button1	Box	**Off**, Box, Line, Full	Selects the box type.
Button2	Color	**Whit**, Red, Grn, Blue, Yell, Mgnt, Cyan	Selects the line color of the box.
Button3	Side	**T/B** > L/R	Selects the side of the box to be adjusted: T/B = Top/Bottom; L/R = Left/Right
Rotary1	Top	0..99 **(24)**	Sets the top position of the box.
Rotary2	Bottom	0..99 **(73)**	Sets the bottom position of the box.
Rotary1	Left	0..99 **(24)**	Sets the left position of the box.

Box 2 setup menu (BOX2)

Button	Item	Value(s)	Description
Menu	EXIT	BOX2	Exits the box2 menu.
Button1	Box	**Off**, Box, Line, Full	Selects the box type.
Button2	Color	**Whit**, Red, Grn, Blue, Yell, Mgnt, Cyan	Selects the line color of the box.
Button3	Side	**T/B** > L/R	Selects the side of the box to be adjusted: T/B = Top/Bottom; L/R = Left/Right
Rotary1	Top	0..99 **(24)**	Sets the top position of the box.
Rotary2	Bottom	0..99 **(73)**	Sets the bottom position of the box.
Rotary1	Left	0..99 **(24)**	Sets the left position of the box.

Viewfinder status information

The status information screen shows information about the viewfinder's internal hard- and software components. This information can be useful when contacting Grass Valley service support. Press EXIT to leave this screen.

```
              Viewfinder  Status  Information
                 Type: VF 7-100X      PID: nnnnn
                    12NC        Status     Date       PID
      Main Brd:  0052 200 05701  St:00     St:00    PID12
        ID Brd:  3922 406 56031  St:00     St:00    PID12
        UI Brd:  0052 200 09001  St:00     St:00    PID12

                    12NC        Status     Date      Valid
      Package:   0053 800 00801  v01.99   1/1/2020    Ok
      Content:
      -Conf.Sw   0052 800 02101  v01.99   1/1/2020    Ok
      -Firmware  0050 400 01901  v01.99   1/1/2020    Ok
      -Appl.Sw   0052 800 02001  v01.99   1/1/2020    Ok
      Configuration software active:     Yes
```
EXIT
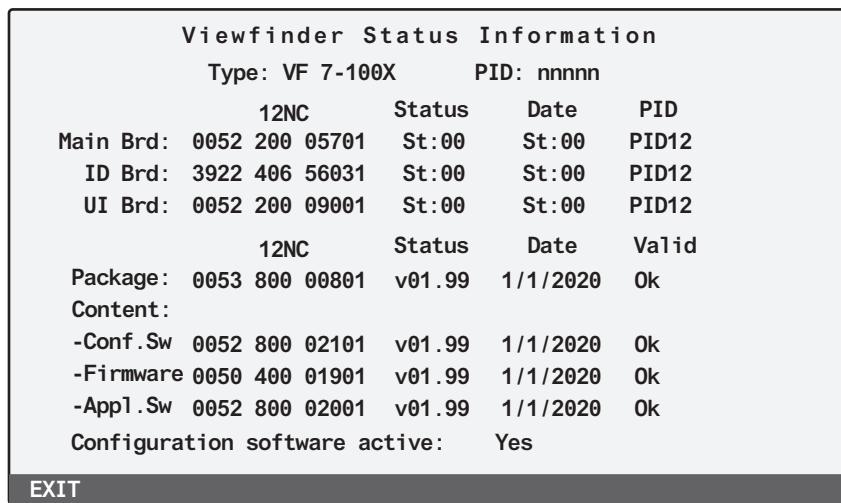
A Specifications

General

Dimensions (W x H x D)	228 x 214 x 76 mm (9.0 x 8.4 x 3.0 in) without sunhood, including mounting bracket
Weight (approx.)	2.0 kg (4.4 lbs) with sunhood and mounting bracket
Operating temperatures	-20 to +45 °C (-4 to +113 °F)
Storage temperatures	-25 to +70 °C (-13 to +158 °F)
Power supply	+10.5 to +17 VDC (supplied by the camera head)
Power consumption (typ.)	12 W (supplied by the camera head)
Input signal	HD-SDI (1.5 Gb/s) or 3G-SDI (3 Gb/s); 50 Ω
Controls	Menu button, 3 assignable user buttons (illuminated), 3 large rotary controls for Brightness, Contrast and Peaking.
Indicators	ISO (yellow), On-Air (red), Call signal (green), large Tally lights (red)

Screen

Diagonal screen size	7.0 inch (17.8 cm)
Color depth	16.7M colors (8 bits/color)
Total display area	Full HD: 1920 (H) x 1080 (V) pixels
Display aspect ratio	16:9
Viewing angle	-85° to +85° (H); -85° to +85° (V)
Pixel pitch	0.081 x 0.081 mm (0.0032 x 0.0032 in)
Brightness	700 Cd/m^2
Contrast ratio	800:1
Color temperature	6500 K (adjustable)
Screen coating	Anti-reflective layer

Dimensions

228 mm

176 mm

214 mm

38 mm

54 mm
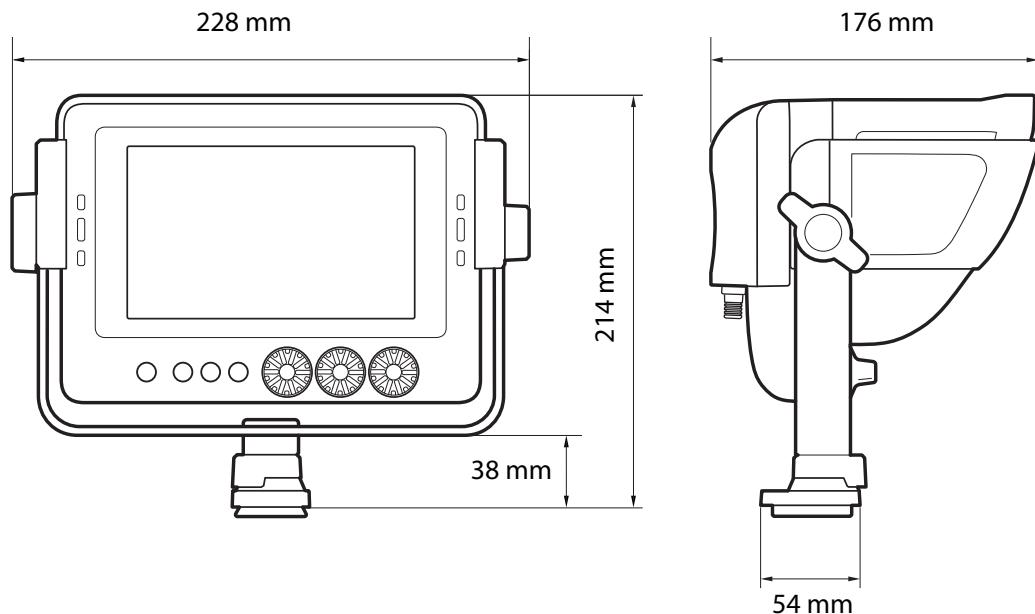
Accessories

- Mounting bracket (supplied)
- Short sunhood (supplied)
- LDK 6992/12 Large closed sunhood for 7-inch viewfinders (optional)
- LDK 6400/20 Set of identification numbers (optional)

Connector
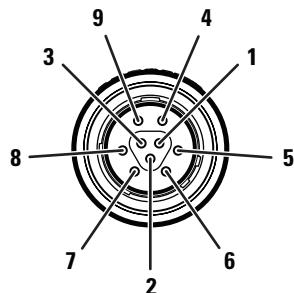
9-pin female VF-connector, moulded to viewfinder lead cable; Fischer MiniMax series, manufacturer code: MP11ZL08 2007 BK1 Z1AS.

Pin	Name	Description
1	USB -	USB 2.0 (I^2C control data over USB)
2	Drain1-2	Ground shields from Lane 1 and Lane 2
3	USB +	USB 2.0 (I^2C control data over USB)
4	VF-Power+	+10.5 to +17 VDC; 3A max
5	Lane 1+	VF video: HD-SDI (1.5 Gb/s) or 3G-SDI (3 Gb/s); 50 Ω *)
6	Lane 1-	VF video: HD-SDI (1.5 Gb/s) or 3G-SDI (3 Gb/s); 50 Ω *)
7	Lane 2+	VF video: HD-SDI (1.5 Gb/s) or 3G-SDI (3 Gb/s); 50 Ω *)
8	Lane 2-	VF video: HD-SDI (1.5 Gb/s) or 3G-SDI (3 Gb/s); 50 Ω *)
9	GND	Power GND

*) Supported video modes and SMPTE standards:

VF video mode	Description
1080i59	SMPTE 292M
1080i50	
1080i/47	
1080i/48	SMPTE 292M
1080i/50	
1080i/59	
1080i50	
1080i59	
720p59	SMPTE 296M
720p50	
720p59	
720p50	
720p59	

1080p59	SMPTE 425-1
1080p50	
1080p59 (4:4:4)	SMPTE 425-3Dual link 3G-SDI
1080p50 (4:4:4)	

Contact Us

Grass Valley Technical Support

For technical assistance, contact our international support center, at
1-800-547-8949 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, please consult the
Contact Us section of Grass Valley's website (www.grassvalley.com).

An online form for e-mail contact is also available from the website.

Corporate Head Office

Grass Valley
3499 Douglas-B.-Floreani
St-Laurent, Quebec H4S 2C6
Canada
Telephone: +1 514 333 1772
Fax: +1 514 333 9828
www.grassvalley.com