

## Multi-Channel LCD Rack Monitor PRM Series



## **User's Manual**

PRM-902A PRM-902Q

PRM-702A

PRM-702Q

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## Warning

- · Always use DC 12V power.
- · If liquid comes in contact with this product, please disconnect the product immediately and seek professional support before continued use.
- · Keep unit disconnected during extended periods of nonuse.
- · Keep unit well-ventilated to prevent overheating.
- Do not install the product near any heat-generating equipment. Also, keep the product out of direct sunlight or dusty areas.
- · Clean the product with a noncommercial, mild detergents only.
- · When transporting the product, make use of its original packaging for safer carriage.

## FCC (Federal Communications Commission)

This equipment has been tested and found to comply with the limits for 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.

# Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)



This symbol on the product or on its packing indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequence for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources.

## **Features**

## PRM Series LCD Rack Monitors have the following features:

· Compatible with varied SDI Signals

The product is compatible with varied SDI signal

- 480i, 576i, 720p, 1035i, 1080i, 1080p, 1080psf, 2K

## · Compatible with varied Analog Signals

The product is compatible with varied Composite, S-Video signal

- NTSC. PAL. SECAM

The product is compatible with varied Component, RGB signal

- 480i,576i,480p,576p,720p,1080i,1080p

## · Waveform/Vector Scope/Audio Level Meter

"Y", "Cb", "Cr" Waveform & Vector Scope available for SDI Signals

16-CH Embedded Audio Level Meter

#### · Audio Out

Built in Audio De-embedder and Internal Speakers

Stereo Audio out using phone jack

#### · Knob Control

Easy to adjust user configuration using the control knob

- · BLUE & MONO
- · H/V Delay
- · Wide Variety of Markers & Safety Areas

Center Marker, Safety Area Marker, Aspect Marker, Display Size(Scan)

#### · Pixel To Pixel

Provides both full screen and unscaled native image.

- · Wide Screen / LED Backlight (902Q/702A/702Q), CCFT Backlight (902A)
- · 24Bit RGB LVDS Interface Panel
- · DC Compatible

The product is powered by normal 12V source.

## · Remote Control Function

Simple remote controllability with single cable connection,

no additional modules required

#### · Additional Features

Active Loop Through/SDI,

902A - 600:1 contrast ratio, 600 cd/m<sup>2</sup> brightness

902Q - 1000:1 contrast ratio, 400 cd/m<sup>2</sup> brightness

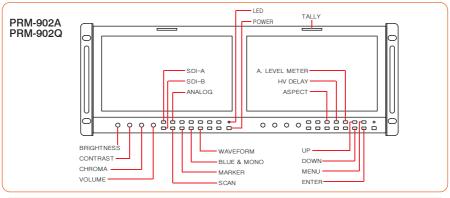
702A - 700:1 contrast ratio, 350 cd/m<sup>2</sup> brightness

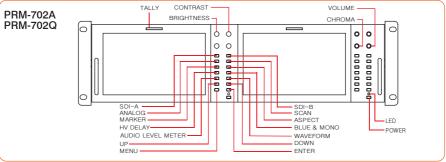
702Q - 800:1 contrast ratio, 400 cd/m<sup>2</sup> brightness

OSD user interface, Rack Mountable

## Name & Function of Each Part

## <FRONT>





## · [BRIGHT] knob

Used to adjust the degree of brightness between MAX(25) and MIN(-25).

## · [CONTRAST] knob

Used to adjust the contrast ration between MAX(25) and MIN(-25).

#### · [CHROMA] knob

Used to adjust the saturation between MAX(25) and MIN(-25).

#### · [VOLUME] knob

Used to adjust the volume between MAX(20) and MIN(0).

## · [SDI-A] button

Used to select SDI A Input.

## · [SDI-B] button

Used to select SDI B Input.

## · [ANALOG] button

Used to select desired Analog Input (CVBS1/2/3, S-Video, Component, RGB).

## PRM-902A, 902Q, 702A, 702Q

#### · [SCAN] button

Used to transfer from OVER SCAN mode to ZERO SCAN mode.

Mode changes in the order of ZERO SCAN -> OVER SCAN -> PIXEL TO PIXEL

- -> ZERO SCAN.
- -This function is not available in Internal Pattern and Wave Form/Vector Scope full size.

#### · [ASPECT] button

Used to toggle aspect ratio in SD from standard to anamorphic.

- This function is not available in Internal Pattern and Wave Form/Vector Scope full size.

## · [MARKER] button

Used to show MARKER on the screen. The type of marker at work may be selected on the main menu.

 This function is not available in Internal Pattern, Wave Form/Vector Scope full size, Pixel to Pixel and HV Delay mode.

#### · [HVDELAY] button

Used to activate the HV Delay mode.

- This function is not available in Internal Pattern and Wave Form/Vector Scope full size.

#### · [BLUE/MONO] button

You may remove R(red) and G(green) from the input signal and play the screen only with B(blue) signal. Button may be pressed twice to change the screen to MONO mode. (This mode uses only Luminance value)

- This function is not available in Internal Pattern and Wave Form/Vector Scope full size.

#### · [AUDIO LEVEL] button

Used to active AUDIO LEVEL METER on the screen. The type of audio level meter at work may be selected on the main menu.

- This is available only in SDI input mode.

#### · [WAVE/VECTOR] button

Used to activate the Waveform or Vector Scope.

Small and Full Waveform/Vector Scope display can be selected in the system menu.

```
Small display : YCbCr \rightarrow Y \rightarrow Cb \rightarrow Cr \rightarrow Vector \rightarrow off Full display : Y \rightarrow Cb \rightarrow Cr \rightarrow Vector \rightarrow off (Use "WAVE/VECTOR" button to control)
```

- This is available only in SDI input mode.

#### · [UP] button

Used to navigate menu during OSD menu activation. It may also be used to toggle clockwise through 1:1 quadrants in native scan mode.

## · [DOWN] button

Used to navigate menu during OSD menu activation. It may also be used to toggle counterclockwise through 1:1 quadrants in native scan mode.

#### · [MENU] button

Used to activate the OSD menu.

#### · [ENTER] button

Used to confirm a chosen value (or mode) within the OSD menu.

- This can be used to control the position of Wave/Vector in small size.

#### · [POWER] button

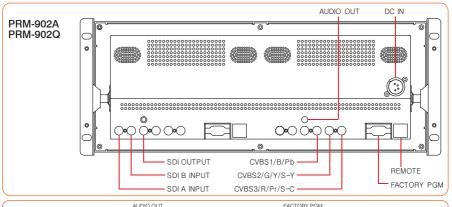
Power On/Off button.

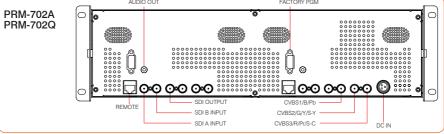
If the signal is normal, LED lights in Green. If the signal is unsupported or disconnected, LED flashes in Yellow.

#### · TALLY

LED indicating monitor's current status using optional Remote.

## <REAR>





Composite

CVBS1

CVBS2

CVBS3

- · SDI A-IN (BNC) SDI A signal input terminal
- · SDI B-IN (BNC) SDI B signal input terminal
- SDI-OUT (BNC)
   SDI signal output terminal
- · CVBS1/B/Pb (BNC)
- Signal input terminal used for COMPOSITE1, RGB B, COMPONENT Pb signals.
- CVBS2/G/Y/S-Y (BNC)
   Signal input terminal used for COMPOSITE2, RGB G, COMPONENT Y, SVIDEO Y signals.
- CVBS3/R/Pr/S-C (BNC)
   Signal input terminal used for COMPOSITE3, RGB R, COMPONENT Pr, SVIDEO C signals.

Connector

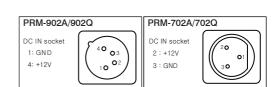
1

2

3

- AUDIO OUT (phone jack)
   Used to audio output jack.
- FACTORY PGM (15 pins)
   Input connector for FACTORY PGM allowing for firmware update.
- REMOTE (RJ-45)

  Connection for remote control of monitor.



Component

Pb

Υ

Pr

RGB

В

G

S-Video

No Con.

Υ

С

## OSD Menu Organization & Adjustment

## [1] MAIN - Picture



## · Brightness

This Item controls the degree of brightness.

-Brightness can be adjusted by using the [BRIGHT] control knob on the front of the monitor.

#### · Contrast

This item controls the contrast ratio

-Contrast can be adjusted by using the [CONTRAST] control knob on the front of the monitor.

## · Chroma

This item controls saturation.

-Saturation can be adjusted by using the [CHROMA] control knob on the front of the monitor.

## · Aperture

This item controls the picture sharpness.

#### · Phase

This item controls Phase value (Hue).

-This function is only available in Composite and S-Video NTSC Input.

## · NTSC Setup

This item sets IRE value in NTSC mode between 0 IRE and 7.5 IRE.

-This function is only available in NTSC Input.

## [2] MAIN - Color



## · Color Temp

This item controls Color Temperature with presets of 3200K, 5600K, 6500K, 9300K, and User1, User2 & User3 mode.

#### · User

On User Mode, the user may select and control R, G, & B GAIN, BIAS values by using the [UP]/[DOWN]/[ENTER] buttons.

## · Color Copy

In User mode, user can copy the preset of 3200K, 5600K, 6500K or 9300K to make the custom adjustment by using the [UP]/[DOWN]/[ENTER] button.

## [3] MAIN - Marker



## · Line Marker

This selects the marker type when the MARKER is displayed on the screen. Compatible MARKER types are as follows:

MODE	MARKER CLASS
HD / SD 16:9	16:9, 4:3, 4:3 ON AIR, 15:9, 14:9, 13:9, 1.85:1, 2.35:1, 1.85:1 & 4:3
SD 4:3	16:9

#### · Center Marker

This item displays the CENTER MARKER on the screen.

## · Safety Area

This item controls the size of the SAFETY AREA between 80%, 85%, 88%, 90%, 93%, and 100%.

#### · Marker Mat

This item darkens the area outside of MARKER setting area. The degree of the matte is between OFF(0) and (7).

The higher the number the darker MARKER the matte becomes.

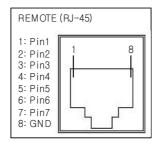
#### · Marker Color

This item controls Marker color. Selectable colors are white, gray, black, red, green, and blue.

-Line Marker, Center Marker and Safety Area functions are operates only after activated by pressing the MARKER button on the front of the monitor.

## [4] MAIN - Remote





## · Pin1 ~ Pin6

The user may connect RJ-45 jack to the remote terminal on the rear of the unit and designate a function for each pin.

The selectable functions are as follows:

Menu Classification	Selectable Values		
PIN 1~6	ANALOG CHANNEL DIGITAL A CHANNEL DIGITAL B CHANNEL TALLY RED TALLY GREEN BLUE ONLY UNDERSCAN ASPECT HVDELAY 16:9 MARKER, 15:9 MARKER, 14:9 MARKER, 13:9 MARKER, 4:3 MARKER, 4:3 ON AIR MARKER, 1.85:1 MARKER, 2.35:1 MARKER, 1.85:1 & 4:3 MARKER CENTER MARKER SAFETY AREA 80%, SAFETY AREA 85%, SAFETY AREA 88%, SAFETY AREA 90%, SAFETY AREA 93%, SAFETY AREA 100%		

## · Pin7

PIN7 is for POWER ON/OFF use only.

## [5] MAIN - System [page1]



## · System Default

User can use the System Default menu to initialize the values of the monitor.

## · Waveform Size

This item controls the size of Waveform or Vector Scope.

#### · Waveform Position

This item controls the position of Waveform or Vector Scope between Right, Center and Left.

- -In normal display, press Enter button to activate this feature in activated Waveform .
- -This feature can be activated in small size mode only.

## · Waveform Blending

This item activates the blending of Waveform or Vector Scope.

- -This feather activates automatically if Waveform overlaps with OSD.
- -This feather can be activated in small size mode only.

#### · Audio Level Meter

This item controls the position of audiolevel meter between Horizontal and Vertical.

#### · Audio Channel

This item sets embedded audio channel selects CH1 ~ CH16, and Off.

- -Waveform Size, Waveform Position and Waveform Blending functions are operates only after activated by pressing the WAVE/VECTOR button on the front of the monitor.
- -Menus or features which are related with Waveform and Audio enables can be enabled in SDI input mode only.

## [6] MAIN - System [page2]



## · Source ID

This item is used to activate the source ID display by selecting BG Type or Char Type.

#### · Source ID Character

This item is used to customize the Source ID display. (A~Z, a~z, 0~9 and special characters)

#### · Source ID Position

This item controls the position of Source ID display. (Top-Left, Top-Center, Top-Right, Bottom-Right, Bottom-Center, or Botttom-Left)

#### · Source ID Color

This item is used to change the color of source ID display by selecting black, white, red, green, blue or yellow.

#### · Time Code

This item activates the Time Code. Select between VITC and LTC.

#### · Internal Pattern

This item used to activate the Internal Pattern of 100% White or 100% Color Bar.

## [7] MAIN - System [page3]



#### · Back Light

This item controls the LED backlight setting. The value should be within range between MIN(0) and MAX(50).

#### · AFD

This item activates the AFD mode. Selectable modes are Off, Aspect Mode and Marker mode. -This feature action in only SDI signal included AFD Data. (This feature activates only with SDI signal includes AFD data.)

-In Internal Pattern mode, this feature and menu are disabled automatically.

#### Set ID

This item controls the Set ID setting for UMD. The value should be within range between 0 and 99.

#### · Closed Caption

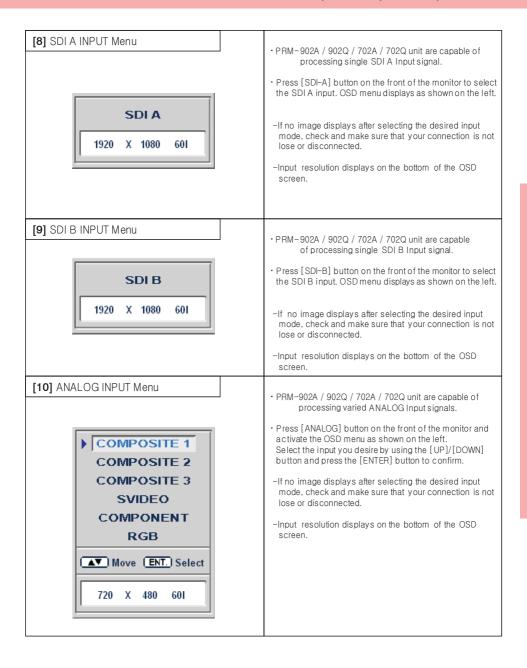
This item controls closed caption ON/OFF. (708, 608 [Line21], 608 [ANC])

#### · Firmware Version

This item is the firmware version of the system.

#### ·License

## PRM-902A, 902Q, 702A, 702Q



## Other Functions

## [1] PIXEL TO PIXEL

- · PRM-Rack monitor's Pixel to Pixel mode displays input signal without scaling.
- $\cdot$  To activate the [Pixel to Pixel] mode, access the Scan menu in Syetem menu and select [Pixel to Pixel].
- · In the [Pixel To Pixel] mode, use the [UP]/[DOWN] buttons to toggle between 1:1 scan sections

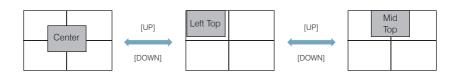
Input	Action Button	Available Modes		
HD 1080i/1080p (Clockwise) Bottom -> Mid Bottom -> Left Bottom -> Left Mid -> Center -> Left Mid -> Left Bottom -> Mid Bottom -> Right		Center -> Left Top -> Mid Top -> Right Top -> Right Mid -> Right Bottom -> Mid Bottom -> Left Bottom -> Left Mid -> Center ->		
		Center -> Left Mid -> Left Bottom -> Mid Bottom -> Right Bottom -> Right Mid -> Right Top -> Mid Top -> Left Top -> Center ->		
- OSD change				
Left Top	[UP]	•		
	[UP][	DOWN] [UP] [DOWN]		
Left Mid	[UP]   [DOWN	Center Right Mid		
[UP] <b>(</b> D	OWN]	[UP] (DOWN)		
Left Bot	[UP]	[UP]    Mid Bot   DOWN]		

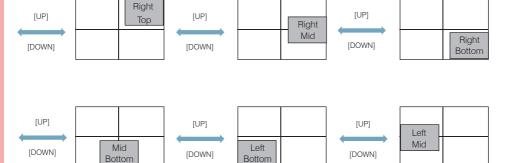
## PRM-902A, 902Q, 702A, 702Q

Input	Action Button	Available Modes	
(Clockwise) Center ->		Center -> Left Top -> Right Top -> Right Bottom -> left Bottom -> Center ->	
но 720р	HD 720p  [DOWN] Center -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Top -> Left Bottom -> Right Bottom -> Right Right Bottom -> Right Right Bottom -> Right Right Bottom -> Right Right Right Bottom -> Right		
- OSD change			
Center	[UP]	Left Top [UP] Right Top [DOWN]	
[UP] [DOWN	Left Bot	[UP] [UP] [DOWN] [DOWN]	

- Pixel To Pixel mode is available in SD mode, but 1:1 sections cannot be rotated through as with HD sources.

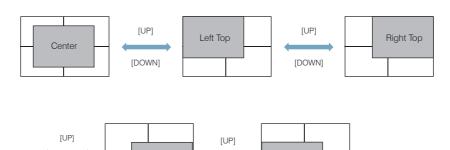
· Positions in HD Signal 1080i/1080p mode





· Positions in HD Signal 720p mode

[DOWN]



[DOWN]

Left Bottom

Right Bottom

## [2] Waveform

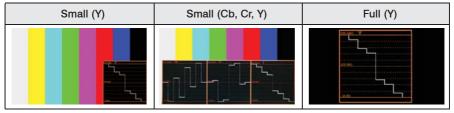
Small display : YCbCr  $\rightarrow$  Y  $\rightarrow$  Cb  $\rightarrow$  Cr  $\rightarrow$  Vector  $\rightarrow$  off

Full display  $: Y \to Cb \to Cr \to Vector \to off$ 

## · Waveform

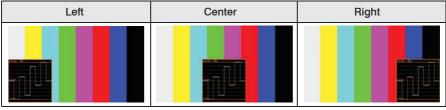


## · Waveform Size

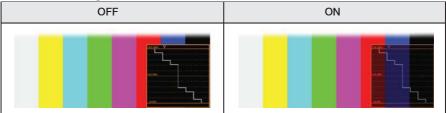


If push the Input button (SDI-A,SDI-B and Analog), Waveform full mode is change to small mode automatically.

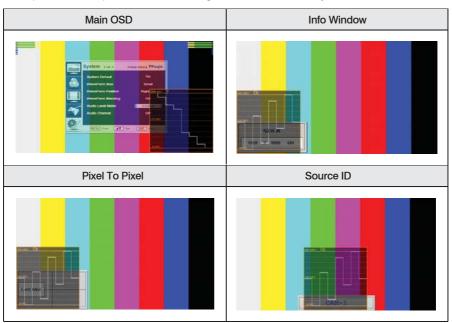
## · Waveform Positions



## · Waveform Blending



· Exception: If overlaps with OSD, blending activates automatically.



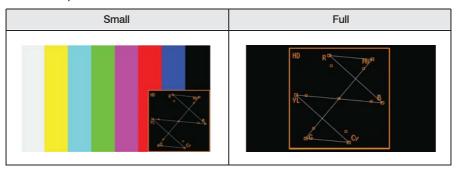
This function is only available with SDI Input.

## [3] Vector Scope

## ·Vector Scope



## · Vector Scope Size



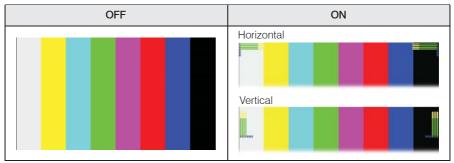
Vector Scope Position / Blending

: Refer to the Waveform position (P.18) and Waveform Blending (P.19)

This function is only available with SDI Input.

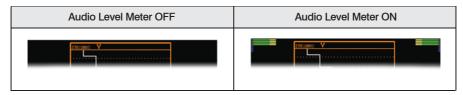
## [4] Audio Level Meter

· Audio Level Meter

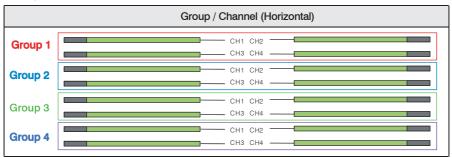


## · Avoid Overlap

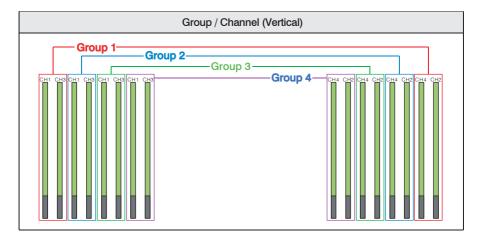
In full size WaveForm mode, WaveForm shifts down to avoid the overlap with Audio Level Meter.



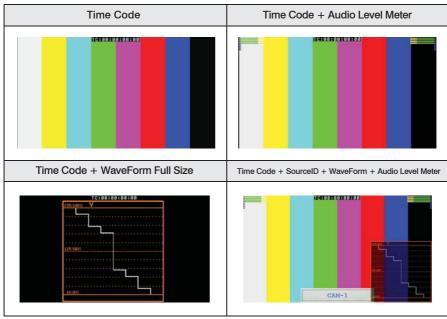
## · Group & Channel



#This function is only available with SDI Input.



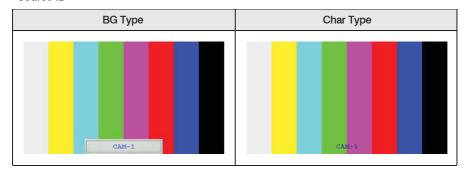
## [5] Time Code



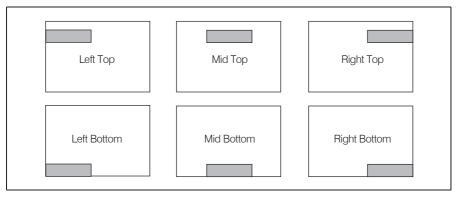
#This function is only available with SDI Input.

## [6] Source ID

## · Source ID



## · Source ID Position



## · Source ID Color

Black	White	Red	Green	Blue	Yellow
CAM-1	CAM-1	CAM-1	CAM-1	CAM-1	CAM-1

## System Default Value

	MEMU	Value		
	Brightness	0		
	Contrast	0		
Picture	Chroma	0		
Picture	Aperture	0		
	Phase	0		
	NTSC Setup	7.5 IRE		
	Color Temp	6500K		
	Gain Red (1/2/3)	0		
	Gain Green (1/2/3)	0		
Color	Gain Blue (1/2/3)	0		
Color	Bias Red (1/2/3)	0		
	Bias Green (1/2/3)	0		
	Bias Blue (1/2/3)	0		
	Color Copy	6500K		
	Line Marker	Off		
	Center Marker	Off		
Marker	Safety Area	Off		
	Maker Mat	Off		
	Marker Color	White		
	PIN 1	Analog Channel		
	PIN 2	Digital A Channel		
	PIN 3	Digital B Channel		
Remote	PIN 4	Tally R		
	PIN 5	Tally G		
	PIN 6	Blue Only		
	System Default	No		
	Waveform Size	Small		
0 1 10 41	Waveform Position	Right Bot		
System [Page 1]	Waveform Blending	Off		
	Audio Level Meter	Horizontal		
	Audio Channel	Off		
	Source ID	Off		
	Source ID Character	C A M – 1		
Custom [Dogo 0]	Source ID Position	Left Top		
System [Page 2]	Source ID Color	Black		
	Time Code	Off		
	Internal Pattern	Off		
System [Page 3]	Back Light	Calibrated Value		
, , ,	Scan	Zero Scan		
	Aspect Ratio	4:3		
	Marker	Off		
System [Button]	HV Delay	Off		
	Blue & Mono	Off		
	Audio Level Meter	Off		
	Waveform/Vector	Off		

<sup>#</sup> Specifications may be changed without notice.

## Product Specifications (PRM-902A, 902Q, 702A, 702Q)

Input (1 Caroon)	3 x BNC	Analog Input	
Input (1 Screen)	1 x BNC	SDI 2 Channel Input	
Output (1 Screen)	1 x BNC	SDI Output (Active Through Out)	
	Composite	1.0Vpp (With Sync)	
	S-Video	1.0Vpp (Y With Sync), 0.286Vpp(C)	
Input Signal	Component	1.0Vpp (Y With Sync), 0.7Vpp (Pb,Pr)	
par e.g.ra.	RGB	1.0Vpp (G With Sync), 0.7Vpp (B,R)	
	HD-SDI	1.458Gbps	
	SD-SDI	270Mbps	
	Composite / S-Video	NTSC (525/59.94i) , PAL (625/50i)	
Analog Input		480i (59.94) , 576i (50) , 480P (59.94) , 576P (50)	
Signal Formats	Component	1080i (60/59.94/50)	
Signal i Officials	/ RGB (SOG)	1080P (30/29.97/25/24/24sF/23.98/23.98sF)	
		720P (50/59.94/60)	
	OMBTE OTAM	1080i (60/59.94/50)	
	SMPTE-274M	1080p (30/29.97/25/24/24sF/23.98/23.98sF)	
SDI Input Signal	SMPTE-296M	720p (23.98/24/25/29.97/30/50/59.94/60)	
Formats	SMPTE-260M	1035i (60/59.94)	
Formats	SMPTE-125M	480i (59.94)	
	ITU-R.BT.656	576i (50)	
	2K Format	2048 X 1080 (23.98psf/24psf/23.98psf/24p)	
Audio Out		Analog Stereo (Phone Jack)	
		Internal Speaker 2 X 1W (Stereo)	

## LCD Specification (PRM-902A/PRM-902Q)

Model		902A	902Q	
	Size	9.0 inch	9.0 inch	
	Resolution	800 (H) x 480 (V) (15:9)	960 (H) x 540 (V) (16:9)	
	Pixel Pitch	0.246 (H) X 0.246 (V) mm	0.207 (H) X 0.207 (V) mm	
	Color	16.7M(true), 24bit	16.7M(true), 24bit	
LCD Vi	Viewing Angle	H: 160 degrees	H: 170 degrees	
	Viewing Angle	V: 140 degrees	V : 170 degrees	
	Luminance of white	600 cd/m² (Center)	400 cd/m² (Center)	
	Contrast	600:1	1000:1	
	Display Area	196.8 (H) x 118.08 (V) mm	198.72 (H) x 111.78 (V) mm	

<sup>-</sup> Specifications may be changed without notice.

## LCD Specification (PRM-702A/PRM-702Q)

Model		702A	702Q	
	Size	7.0 inch	7.0 inch	
	Resolution	800 (H) x 480 (V) (15:9)	1024 (H) x 600 (V)	
	Pixel Pitch	0.1905 (H) X 0.1905 (V) mm	0.15 (H) X 0.15 (V) mm	
	Color	16.2M(true), 24bit	16.7M(true), 24bit	
LCD	Viewing Angle	H: 140 degrees	H: 170 degrees	
		V: 140 degrees	V: 170 degrees	
	Luminance of white	350 cd/m² (Center)	400 cd/m² (Center)	
	Contrast	700:1	800:1	
	Display Area	152.4 (H) x 91.44 (V) mm	153.76 (H) x 90.0 (V) mm	

## Power/Dimensture Specification (PRM-902A/PRM-902Q)

•				
Model	902A	902Q		
Power	12V DC, 2.7A	12V DC, 2.4A		
Power Consumption (Approx.)	33 Watts 29 Watts			
Operating Temperature	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)		
Storage Temperature	-30°C to 50°C (-22°F to 122°F)	-30°C to 50°C (-22°F to 122°F)		
Main Body Dimensions	442 x 170 x 63.2 mm (	174 x 66.9 x 24.9 inch)		
Main Body Dimensions	482 x 178 x 86.7 mm (189.6 x 70 x 34.1 inch)- With Rack Bracke			
Weight	4.1 kg / 9.038 lbs	3.6 kg / 7.936 lbs		
Accessory	DC Power Adapter			

## Power/Dimensture Specification (PRM-702A/PRM-702Q)

Model	702A	702Q
Power	12V DC, 1.6A	12V DC, 1.7A
Power Consumption (Approx.)	20 Watts	21 Watts
Operating Temperature	0°C to 40°C (32°F to 104°F)	0℃ to 40℃ (32°F to 104°F)
Storage Temperature	-30℃ to 50℃ (-22°F to 122°F)	-30℃ to 50℃ (-22°F to 122°F)
Main Body Dimensions	442 x 170 x 63.2 mm (174 x 66.9 x 24.9 inch)	
Main Body Dimensions	480 x 126 x 45.2 mm (18.89 x 4.96 x 1.78 inch)- With Rack Bracket	
Weight	3.2 kg / 7.054 lbs	3.1 kg / 6.834 lbs
Accessory	DC Power Adapter	

<sup>-</sup> Specifications may be changed without notice.

# PRM Series

User's Manual

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