

# **User's Manual**

# Dual-mode Multimedia Player PBOX150

Rev1.0.0 NS120100107

PBOX 150

#### Statement

Welcome to use the product from Xi' an NovaStar Tech Co., Ltd. (hereinafter referred to as "NovaStar"). It is our great pleasure to offer this manual to help you understand and use the product. We have striven for precision and reliability during the compilation of this manual. The contents of this manual are subject to change without notice. If you have any problem in use or you have any suggestion, please feel free to contact us according to the contact information provided in this manual. We will do our utmost to satisfy your needs. We would like to express our sincere thanks to your suggestions and make assessment for adoption as soon as possible

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### Trademark

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### **FCC Caution**

Any 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.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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# **1** Brief Introduction of PBOX150

In order to support traditional digital signage and provide a better entry into full-color LED display industry for clients to carry out media business, NovaStar has launched dual-mode media player PBOX150. Synchronous and asynchronous dual-mode switch is supported, which has made it more convenient for clients to use.

- Synchronous and asynchronous dual-mode and supporting full zoom of video input in synchronous mode;
- 2) Supporting HDMI Loop;
- 3) Supporting WiFi function to enable wireless communication;
- WiFi function supports AP+Sta at the same time and you can build your LAN while connecting public network;
- Supporting load capability of 600,000 and maximum width of 2048 and maximum height of 1024;
- 6) Supporting redundancy backup of Gigabit Ethernet port;
- 7) Supporting audio output with stereo dual-channel;
- 8) Supporting local USB drive playing;
- 9) Supporting local USB drive playing of imported program;
- 10) Supporting three ways of brightness adjustment: timing adjustment, automatic adjustment and manual adjustment;
- 11) Supporting screen lock and blackout;
- 12) Supporting screen on/off via power;
- 13) Supporting SD card memory expansion;

- 14) Supporting remote cluster control and play via Internet;
- 15) Supporting various media formats such as analog clock, animation, picture, text, scrolling text, digital clock, positive and negative timing, Chinese traditional calendar etc;
- 16) Supporting playing with transparent background;
- 17) Supporting chips: driving IC of Macroblock, CHIPONE, Sumacro, Mingyang, IT, Bright Way, Hangzhou Silan etc. supported in cascading mode;
- 18) Support full-color static to 32 scan;
- 19) Field frequency of 60Hz;
- 20) Settable gray level and supporting a maximum gray level of 16bits 65536 grades;
- 21) Refresh frequency: scanning screen can achieve 3840Hz and static screen can achieve 6000Hz;
- 22) Supporting brightness and chroma calibration;
- 23) Able to connect function card MFN300;

# 2 Appearance

NOVA)STAR		PBOX150 LED MEDIA PLAYER
VIDEO SWITCH	login IP:192.169.10.1 login Password.zdmin WiF Password.22466799 SSID.nova09D9E0 SD CARD	
VIDEO SWITCH	Audio and video Switching Light on in HDMI mode and off in a	asynchronous mode.
WiFi	Connecting antenna	
SD CARD	Plugging SD card	



100~240AV.50/60Hz	Power interface					
Default IP	Default IP of P	Default IP of PBOX150 is: 192.168.0.220				
	Status	PWR: power indicator				
PWR&RUN	indicator	RUN: signal indicator				
	100M interface connecting to control computer					
	the Internet.					
USB	USB interface for mainstream USB drive					
RESET	Factory reset button					
TEMP	interface for te	emperature sensor				
LIGHT	interface for lig	ght sensor				
HDMI IN	HDMI input					
HDMI LOOP	HDMI Loop ou	HDMI Loop output				
AUDIO OUT	Audio output	Audio output				
LED OUT	Gigabit Ethern	Gigabit Ethernet port, LED output				
ВАСКИР	Gigabit Ethern	Gigabit Ethernet port, LED backup output				

# **3 Network Connections**

PBOX150 can be connected to play& control computer through three modes: network cable,

LAN and WiFi.

# 3.1 Network cable



Fig. 3-2 LAN

#### **3.3 Wifi**

Tips:

- 1) The WiFi function of PBOX150 has DHCP service which is disabled and in route mode by default.
- 2) Please do not directly switch PSD100-WiFi into local area networks by network cables at the time of DHCP opening. As the DHCP of this card will conflict with the DHCP service for routers in the local area network at the time of opening and meanwhile, IP addresses will be distributed simultaneously.
- 3) When the PSD100-WiFi switches into routers, Huawei, TP-link, Tenda and net gear brands are recommended for the guarantee of stability.
- 4) When the bridge feature is used, the superior router under bridge connection shall have the WDS function, otherwise, bridge connection will fail. Mutual bridge connection can be realized among PSD100-WiFi systems and for superior router, it is allowed to pre-confirm whether the WDS of the superior router can be enabled. The mode is generally enabled.
- 5) The default factory settings of control card are that DHCP service is disable.
- The default factory settings of control card are that router mode, users could select the bridge mode according network interface.

#### 3.3.1 Mode I: WiFi control card does not connect with external



#### network

Tip: In this case, publishing and management terminal devices cannot connect external network. PBOX150 itself can build a new network through its connected WiFi.

- 1) Connect PSD100-WiFi to user computers by network cables;
- 2) Set computer's IP address as static IP: 192.168.10. \*;
- Open the browser and input 192.168.10.1 in the address bar, to enter the setting interface of wireless routers. Both the Login User and the password are admin by default. Enter the DHCP server >DHCP service and open DHCP services;

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NOVA ST	AR	NovaStar WiFi	NE INEnglish 中文
<ul> <li>Status</li> <li>Network</li> <li>WLAN</li> <li>DHCP Server</li> <li>Service</li> <li>Client List</li> <li>Static assign</li> <li>Tools</li> <li>Logout</li> </ul>	DHCP Service Set DHCP Server: 6 IP pool start address: 7 IP pool end address: 7 Expiration Time: 7 Save Restore	■ Exable 192.168.11.100 192.168.11.254 one week ▼	Help Info If you use the DHCP server automatically configure the TCP/IP protocol in the the TCP/IP protocol in the address to form the address to form the address to form the address to Real and the address to address the address to address the address to the the address to form the address the form the form the address to form the address the form the form the address of those the form address of those time is a expired.

4) Use mobile device to search the hot spots of the WiFi module for connection: The SSID is

nova\*\*\*\*\*\* (check information label) and the default password is 0123456789.

### 3.3.2 Mode II: connect the WiFi card with external network by



#### wireless network

- 1) Set computer's IP address as static IP: 192.168.10. \*;
- 2) Open the browser and input 192.168.10.1 in the address bar, to enter the setting interface of wireless routers. Both the Login User and the password are admin by default. Enter the DHCP

server ->DHCP service and open DHCP services. Conduct wireless setting -> scanning hot spots and decide the spot for connection:

OVASI	TAR			Nov	aStar	WiFi		English
Status Network WLAN	Connecting							
🗆 Basic	SSID	BSSID	Channe	l Signal	Encrypt	Password		Operate
Extension	AP	20:59:A0:F2:2A:F6	11		WEP			Disconnect
WiFi-     Demonster	nova-d401-ap	7C:A2:3E:F8:C4:80	6	((12)	WPA2			Connect
Repeater Scan Hotspot	不知道取什么名字好	60:D8:19:CC:16:0F	6		WPA2			Connect
DHCP Server	ChinaUnicom	54:89:98:7F:79:70	1	((:-	None			Connect
Toole	psd100	EC:6C:9F:0A:D6:EC	4		WPA2			Connect
Logent	novaF22AEA	20:59:A0:F2:2A:EA	6	((f <sup>2</sup> )	WEP			Connect
, Tollour	novaF22B14	20:59:A0:F2:2B:14	6	((18)	WEP			Connect
	novaF22B20	20:59:A0:F2:2B:20	6	((10)	WEP			Connect
	vantlab03	EC:26:CA:19:8E:87	1	$(f_{i}^{0})$	WPAWpa Mix			Connect
	000abcd	8C:BE:BE:19:24:2F	1		WPA2			Connect
	www.0022741	B0-41-1D-03-97-41	11		WEP		1	Connect

3) The connection status is displayed as connected (see the Figure above), when it is allowed to use mobile device for searching the hot spots of the WiFi module for connection: The SSID is nova\*\*\*\*\*\* (check information label) and the default password is 0123456789;

#### 3.3.3 Mode III: connect the WiFi card with external network



#### Note: Please close the DHCP service before setting wireless network parameters.

Connect PSD100-WiFi to external routers by network cables and then use mobile devices for WiFi hot spots searching: The SSID is nova\*\*\*\*\*\* (check information label) and the default password is 0123456789;

#### 3.3.4 Mode IV: WiFi card opens the bridge connection mode



Note: Please close the DHCP service before setting wireless network parameters.

1) Open the browser and input 192.168.10.1 in the address bar, to enter the setting interface of wireless routers. Both the Login User and the password are admin by default. Upon

successful lo	ain, configure	the Relay mode ->	Bridge connection;
	J ' J		J ,

NOVASTA	AR	NovaStar WiFi	NFS English 中文
<ul> <li>Status</li> <li>Network</li> <li>WLAN</li> <li>Basic</li> <li>Extension</li> <li>WiFi- Repeater</li> <li>Scan Hotspot</li> <li>DHCP Server</li> <li>Tools</li> <li>Logont</li> </ul>	WIFI Repeate Mode Setting WIFI-Repeater Bridge V Route Save Bridge		Help Info Set WLAN repeater mode, routing mode is dependent on the IP address of the router, the bridge mode you can get the IP address of the router.

 After configuration, select Wireless setting -> Scan hot spots and select the hot spot for connection. Then reset the computer IP to auto obtain. The topological graph of bridge connection mode is as shown in the figure.

Note: Please refer to the PSD100-WiFi User Guide for mode bridge connection schemes.

### 3.4 IP Searching

Tip: If the DHCP service is enabled, both the IP addresses of the laptop and the control card are 192.168.10. \*. If the DHCP service is disabled and external routers are connected by network cables, laptop and control card all use the IP addresses distributed by external routers. After the wireless control card is successfully connected, the IP addresses of the laptop and the control card are in the same network segment, for easier software search.

Run Nova LCT-Pluto on play& control computer, click System->Search All Display(s);

		n Iool(P) Language(La	ing)(L) Help(H)		
Search All Display	ay(S) by IP(I)	<b>9</b> 1			
Brightness Displa	y Control Monitor Function Car	d Main Board Power			
Remote System Inform	ation				
Remote Address:	Linknown	Net Connection:	Not Connected	Device Count: 1	Inknown
remote Address.	Gildown	Het Connection.	Not connected	Device court.	
Monitor Information					
	Click h	ere to search	Display		
Connection Status: Net	work initialization success!				
	🖳 Search Pluto System Window	/	and the state of the		×
	Search Progress				
	Search complete!				
	Remaining time: 0s				
	Searched Pluto count: 0				
		[	Search Set	Searching	
			Search Set	Searching	
	Display List		Search Set	Searching	
	Display List	By name ascending     order	By IP descending	By IP ascending	_
	Display List	By name ascending order	By IP descending order IP Address	By IP ascending order	
	Display List By name descending order Name PB0X110-1	By name ascending order	By IP descending order IP Address 172, 16, 1, 42	By IP ascending order	
	Display List By name descending order Name PB0X110-1 PB0X110-2	By name ascending order	Search Set By IP descending order IP Address 172, 16, 1, 42 172, 16, 1, 52	By IP ascending order	



Double click on the display and the operation interface of IP modification will shown.

You can modify IP address directly or choose to obtain IP automatically.

Click **Send** after setting is completed.

# 4 Advanced Login

Select the display to be connected from the list you have searched and click connect display;

earch Pro	ogress			
	Search complete!			
	Remaining time: 0s			
$\mathbf{\nabla}$	Searched Pluto count: 0			
			Search Set	Searching
isplay Lis	t Bypame	<ul> <li>By name ascending</li> </ul>	By IP descending	By IP ascending
	descending order	order	order	order
Name			IP Address	
PBOX110	-1		172.16.1.42	
BOX110-	2		172. 16. 1. 52	8
	5			Connect Display

Fig. 4-1 Connect display

Click User ->Advanced Login and then enter the password: "admin", click Login;

System(S)	Setting(N)	Tools(C) Us	ser(U) Plug-	in Tool(P) La	anguage(Lang	)(L) Help(H)				
Advanced Login(A)										
Remote Syste	Display Con	troi Monitor	Function Ca	rd   Main Boa	rd Power					
Remote Syste	minormation									
Remote Addr	ress: PBO	X110-Test3 (17	2.16.1.47)	Net Con	nection:	Connected	Device Count:	1	Search	
Monitor inform	ation									
	- <b>1</b>		•		8	- So		<b>1</b>	••	
								$\bigcirc$		
Connection Sta	itus: Connecte	d control card								



# **5** Software Installation

- Click the link below to download higher versions of NovaLCT-Pluto V4.5.1, the configuration software of display screen: http://www.novastar.tech/xzzx/rjzl/dssxt//rjzl/ybxt/62.html
- Click the link below to download higher versions of PlutoManager V4.5.1, the

play& control software :http://www.novastar.tech/xzzx/rjzl/dssxt//rjzl/ybxt/63.html

 Cluster management: Click the link below to download service platform NovaCloud and central management software Mc-go <u>http://www.novaicloud.com/</u>

# **6** Operation Flowchart



# 7 Switch of Play Mode

PBOX150 supports synchronous and asynchronous modes of playing. In addition,

these two modes could switch quickly from one to the other.

The video source of PBOX150 is HDMI input in synchronous play mode.

Program editing and sending need to work together with play& control software

PlutoManager in asynchronous play mode

The following two methods for switching of play mode are provided to select:

Methods I: Switching by button. Press "SWITCH" on the front panel of PBOX150 and the

indicator light is on showing the current play mode is switched to synchronous.

Methods II: Switching by software. Run Nova LCT-Pluto. Click "Screen Configuration" under

Settings and then select input source configuration.

**Note:** PBOX150 will default to synchronous mode after power on if HDMI input source has the access to signal.

# 8 Operation of Asynchronous Play Mode

Run play& control software PlutoManager on control computer to set program window, edit mode and send. (Please view the operating steps in 10 Program Editing and Publishing by Applying PlutoMnager).

# 9 Operation of Synchronous Play Mode

HDMI input source could obtain images on computer automatically and keep synchronous with computer display. Then edit program on computer to play in real time.

### **10** Screen Configuration by Applying NovaLCT-Pluto

This chapter is only an introduction of the basic configuration of display screen. Please view the www.novastar.tech 17

operating instructions of NovaLCT-Pluto in **NovaLCT-Pluto User's Manual**.

Run Nova LCT-Pluto on the computer.

1) Click System(S)→Search All Display(S). LCT will search current connected display. The result is

shown as below and click Connect Display.

System(S) Setting(N) Tools(C) User(U) Plug-in Tool( Search All Display(S) Search Display by IP(I) Brightness Display Control Monitor Function Card N Remote System Information Remote Address: Unknown	P) Language(Lang)(L) Help(H) e Search Pluto System Window Search Progress Search completel Remaining time: 0s Searched Puto count: 0	Search Set	
Monitor Information	Display List By name descending order Part 10-1 PB0X110-2	By P descending order P Address 172, 16, 1, 42 172, 16, 1, 52	
Connection Status: Network initialization success!		Connect Displays	.::

Fig. 10-1 Searching and linking display

2) Advanced login. The initial password is: admin.

Brightness	Display Control	Monitor	Function Card	Main Boar	d Power				
Remote Syst	em Information								
Remote Add	Iress: Plutozo	e2015 (172.)	16.1.122)	Net Conr	nection:	Connected	Device Coun	t 1	Sear
Monitor Inform	mation								
BBUDh	<b>10</b>	111			C	S			
				-	-	-	0	-	0



#### **10.1 Start LED display by receiving card configuration files**

Precondition: There are saved configuration files in advance or ask display provider and Nova

for configuration files.

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System(S) Setting(N)	Tools(C) User(U)	Plug-in Tool(P)	Language(La	ang)(L) Help(	(H)	Ē		
	<b>•</b>	<b>-</b>	~~~		5			
creen Configuration	intness Calibration	Display Control	Monitor	Function Card	Main Board	Power		
emote System Information	Screen Config	ration						
Remote Address: PBO	Screen coning	aradion		Concession in succession	- Channel -		Search	
onitor Information	Screen Config	uration						
<b>H</b>	Load Configura	atio				Browse		
				Nex	t 🔨 🦲	Close		
								•
nection Status: Connecte	d control card							

Advantage: start display by configuration files without setting by users.

Enter "Scan Board" interface and click "Load File" to import configuration file of scan board in .rcfg format. Click "Save to Screen" and the data won' t lost if the power is

terminated.

Chip: N	MBI5036 Size:	32W×16H	Scan Type: 1/2
Direction: H	Horizontal Decode Type:	74HC138 Decoding	ng Data Group: 2
Cabinet information			
<ul> <li>Regular</li> <li>Pixel Width:</li> <li>Pixel Height:</li> <li>Module Casca</li> </ul>	128   <=199     128   <=128     Right to Left	ase in V sure in V Leight in E	Irregular       Width:     ??       Height:     ??       Loading error.     Please make sure the width and height       Construct Cabinet     View Cabinet
Performance Setting Group Swap Refresh Rate:	More Setting 60 Hz	Accelerate Rate	e: 1 🗸
Gray Scale:	Normal 8192 -	Gray Mode:	Gray First 👻
Data Clock:	12.5 • MHz	Data Duty:	50
Clock Phase:	6 •	Low Gray Com	0
Blanking Time:	15 🚔 (=1.2	Ghost Control	··· 13 (1~14)
Line Change Time:	3 (0~12)		
Brightness Effici	52.69%	Min OE:	496 ns

Fig. 10-3 Starting LED display by configuration files of scan board

# **10.2 Start LED display manually**

### 10.2.1 Smart setting

🖳 Screen Configurati	ion-COM1	1 August	TTT IN AN	the ward	ABOLT ABO	
Sending Board Scan B	oard Screen Config	uration				
Mark: The curre	nt operation in	cascading sc	an board mode!			
Module Information						
Chip: N	1815036 Si	ze: 3	32W×16H	Scan Type:	1/2	>>
Direction: H	Iorizontal De	ecode Type: 7	4HC138 Decoding	Data Group:	2	
Cabinet information						
Regular			🔘 Irregula	ır		
Pixel Width:	128 🚔 <=1	99 Please	B 🔺 Width:	?? Height:	?? Plea	se
Pixel Height:	128 🚔 <=1	28 the widt	h Loadin	g error. Please adjust p	erformance make s the wide	ure the second sec
Module Casca	Right to Left	<ul> <li>and heig</li> </ul>	/ht - Constru	uct Cabinet	iew Cabinet and he	ight 🚽
Performance Setting			] [			
Group Swap	More Setting					
		_	_			
Refresh Rate:	60	▼ Hz	Accelerate Rate: 1	<b></b>		
Gray Scale:	Normal 8192	•	Gray Mode: Gr	ay First 👻		
Data Clock:	12.5	▼ MHz	Data Duty: 50	-	(25~75) %	
Clock Phase:	6	•	Low Gray Com 0	ter le		
Blanking Time:	15	(=1 2)	Ghost Control		4.40	
			13		(1~14)	
Line Change Time:	3	≑ (0~12)				
Drinkingen Effici	53 60%		No. 05 494			
Brightness Effici	52.03%		WIN DE: 430	5115		
Smart Setting			Load File	Save File	ead from Hard Send to H	ardw
				Save Configur	ation Save to Scree	Close

e: (1).Option 1, click 'Next' to begin smart setting! (2).Option 2 or 3, load module information to software.	
<ul><li>(1).Option 1, click 'Next' to begin smart setting!</li><li>(2).Option 2 or 3, load module information to software.</li></ul>	
(2).Option 2 or 3, load module information to software.	
Outline 4: On est antilian	
Option 1: Smart setting	
Option 2: Load module from file	
File Path:	Browse
Option 3: Load module from database	
Cabinet Database	Browse
Selected Module:	Select Module
View Module	Close
VIEW MODULE	CIUSE

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Data Type:	Concurr	ent					-		
Chin Type	MBIS03	2							
Chip Type:	MDISOS	,					•		
OE Polarity:	Unknow	'n					•		
Module Information									
Module Type:		Regula	ar Module		🔘 Irre	gular Module	•		
Chip Count of each o	olor	1		A					
Actual Pixel:		X:	32	-	y:	16	-		
Data Group:		Unknown	-						
Decoding Type:		74HC138	Decoding				•		
Scan Type:		🔲 Over 1	16 Scans		1/2	-	•		
Module in one scan b	ooa	Cols:	4	* *	Rows:	8	-		
Module Cascade Type	(From the Fr	ont)							
─ Left to Right	Right Left	to	Top 1 Botto	to om	C	Bottom to Top		Y	
Scan Board Work Mod	e								
Hub Mode:	Normal	0	20 Groups	© 24	Groups	🔘 28 Gro	oups		
Ghost Control Sigr	al Polarity:	٩	) High	O L	.ow				

#### Data types:

- Module chip: select driving chip type used by cabinets at present such as common chips, MBI5036 and MBI5042 etc.
- > OE Polarity: this option can be High Effective, Low Effective or Unknown.
- Module type: the option can be regular module or irregular module. (Irregular module is not supported by this version)
- Actual Pixel: this is the size of the real pixel array of a module. X represents the width and Y the height.
- Decoding type: the options can be Static, 74HC138 Code or Straight Decoding, choose according to the type of LED display module actually used.
- Scan Type: the options could be any scan rate between 1 scan and 1/16 scan or unknown.
- Rows and columns of the Module in one scan board (also called receiving card): this is the size of the module array in the cabinet which is being configured by smart setting.
- > Module Cascade Type: select the corresponding option according to the module connection

#### routing.

	Notice:
(F	<ol> <li>If the rows and columns of load module of scan board is set as the default (1 column, 1 row), modules in the first row of all cabinets will be lightened.</li> </ol>
	2) Fill in according to the specifications of cabinet and the last modules of the first row of all cabinets will be lightened.

		X
O Showing		
	Next Cancel	
	) Showing	Showing



Please	choose the module color in each status:	
01	Red A	
0 2	Green	
<u>о</u> з	Blue	
04	Red B Or Black	
	Smart Setting Step 4	3
	Lighting rows (or columns) in	

Fill in Smart Setting Step 4 according to actual situation and then click Next. Enter step 5 if Scan Type is not selected in step 1. If selected, software will skip this interface. Dual-mode Multimedia Player PBOX150 User's Manual



Fill in Smart Setting Step 5 according to actual situation and click **Next** to enter "Smart Setting Step 9". Then click the grid on computer corresponding to the lighted grid on module. Another grid will be lighted on the module after clicking one grid and then click next grid as the figure below.



Fig. 10-4 Smart Setting



A prompt box will pop up to remind the completion of scanning after it is completed according

to the display screen. Click Finish button and the dialog of Save module will pop up. Please save www.novastar.tech 23 module to file or to database if it is necessary for the convenience of quick start the display screen with same module next time. Then click Save. Click Finish directly if it is not necessary to save.

You can save modu	le to file or cabine	t database for later	using.		
Module Name:					
Option 1: Save mo	ule to file				
File Path:				Browse	
Option 2: Save mo	ule to database				
Cohinat Databasa		j	Change Database	View	

Fig. 10-5 Save module information

#### **10.2.2 Screen configuration**

Click "Screen configuration" on the main interface to enter the interface of "Send board".

### 10.2.2.1 Input source configuration

Asynchronous will be used when HDMI Input Source is not checked as shown below.

			 and the second	1000	
Sending Board Scan Board Sc	reen Configuration				
Input Source Control					
Manual Operation	HDMI	Input		Refresh	Set
Timing Operation					
Input source control strategy					
Enable HDMI priority				Read	Set

Synchronous mode will be used if HDMI Input Source is checked as shown below. Resolution of input source can be set now.

Screen Configuration-COM1	Author 111 Au Author	AND ADD C	-		
Sending Board Scan Board Screen Configurat	lion				
Input Source Control					
Manual Operation	HDMI Input		Refresh	Set	
Timing Operation					
Preview Resolution					
Current Display Mode					
Input Resolution of Display:	1440 × 900		_		
Graphics Output Resolution:	1440 × 900			Refresh	
Set the video mode of display					
Fixed Resolution	1440 x 900 px 👻			Set	
Customized Resolution	640 x 480 x				
Zoom mode configuration					
Open Full Screen Zoom			Read	Set	
Input source control strategy					
C Enable HDMI priority			Read	Set	
		Save Configuration Save	re to Screen	Close	

Fig. 10-6 Resolution settings

HDMI input: video source as a way for HDMI input get the connection to images from PC.

#### Play box display mode setting:

**Fixed resolution:** the required resolution can be chosen from the provided groups of built-in resolution.

**Custom resolution:** users can customize the resolution of player according to the quality of image.

PBOX150 will default to synchronous mode after power on if HDMI priority is enabled.

#### 10.2.2.2 Screen configuration

Screen can be divided into three types: simple screen, standard screen and complex screen.

The following part is the introduction of the settings of three different types of screen.

#### a) Simple screen configuration

Simple screen refers to each scan board with same load capability. Edit the options of the

Screen Configuration-COM1 Sending Board Scan Board Screen Configuration put Source Control Manual Operation HDMI Input Timing Operation view Resolution urrent Display Mode Input Resolution of Display:  $1440 \times 900$ Graphics Output Resolution  $1440 \times 900$ Set the video mode of display Fixed Resolution 1440 x 900 px -640 x 480 Oustomized Resolution Zoom mode configuration Open Full Screen Zoom Input source control strategy Enable HDMI priority

interface in the figure below according to the actual situation of the screen.

#### Fig. 10-7 Simple screen configuration

**Send board mode**: if checked, asynchronous board without loading cabinet work as the cascading scan board of send card.

**Side channel mode:** if checked, switches between synchronous system and asynchronous system when display screen is connected to asynchronous system and synchronous system. For example, images of synchronous system will be displayed when asynchronous system is switched off, and vice versa. Images connected earlier will be displayed when two systems are switched off. **Configure More screens**: if checked, more screens can be configured.

Load file: Load files of the saved screen information from control computer.

Save file: save screen configuration information as screen information file (\*.scr)

Send to hardware: send screen configuration information to asynchronous card of PBOX150.

Save to screen: save all hardware parameters to flash in case of loss after the power is

terminated.

**Coordinates :** set the initial map position. The default initial position is (0,0) which is the coordinates (0,0) on the top left corner of the mapping display.

Virtual mode: choose the screen with virtual pixel or real pixel. Virtual pixel includes three lights

and four lights.

Columns and rows of scan board: input based on real display modules.

Width, Height: single board pixel and in accordance with cabinet setting on the page of scan

board.

#### b) Standard screen configuration

Manually set the Module Cascade Type and the load capability of each scan board can be different.

ending board   Scan boa	ra sereen com	gurauorr					2
Screen1						Contiguration	Read from Har
Screen Type: Basic Information	Simple Screen		<ul> <li>Standard Sc</li> </ul>	reen 💿	Complex Screen		
Location: X	0 Y	0	Virtual M	lode: Real I	Pixel 👻		
Operate Port Sending Board In	dex	Scan Board Columns:	i 3	Scan Board Rows:	2 Reset	Hide Line	
<b>1</b>			1	2	3		
			Sending#1 Port1	Sending#1 Port:1	Sending#1 Port:1		
		1	Scan B-S	Vidth 128	Goon Boy 3     Width 128		
Port Index			Height:128	Height 128	Height 128		
1			Sending#1 Port1	Sending#1 Port1	Sending#1 Port:1		
		2	Scan B	Wath 128	Math 128		
Back	Clear Port		Height:128	Height 128	Height 128		
Scan Board Size							
Width: 128	101						
Height 128	141						
	12.0						
	Apply to port						
Set Blank Note:Click of	r drag left m	ouse but	tton to set s	screen, right	t mouse button	to cancel!	- !
Detect Status					Open File	Save File	Send to Screen

Fig. 10-8 Standard screen configuration

**Coordinates :** set the initial map position. The default initial position is (0,0) which is the

coordinates (0,0) on the top left corner of the mapping display.

**Virtual mode:** choose the screen with virtual pixel or real pixel. Virtual pixel includes three lights and four lights.

Column number, Line number: input based on real display modules. Software interface will

show the plane figure shown as above.

Reset all: reset all cable connections and cabinet setting.

Undo current Ethernet port: undo all setting related to current Ethernet port.

Width: width of scan board load capability

Height: height of scan board load capability

Apply to current Ethernet port: Set all the size of all cabinet connected to current Ethernet port

as current width and height.

**Space position :** Check to leave a space to current position.

Relay: the pixel of current scan board is 0.

**Methods of standard screen setting:** Define scan board connected to Ethernet port as the 1st board and input corresponding data. The set the board connected to the 1st board as the 2nd board and input corresponding data. The setting will complete clicking just as the same analogy. Pixel of any scan board can be same or different. Or choose to leave a space position and then send to save in scan board or computer.



Right click to cancel current scan board.

#### c) Complex screen configuration

Set the corresponding initial coordinates and pixel of load capability of each scan board respectively.

reen1	1					Co	nfiguration Read from Har	
Serees	Turo: 0.0		0.00.00					
Screen	Board Setting	mple Screen	Standard S	creen 🧕	© Complex Screen			
	Sending#	Port	Scan Bo.	Start X	Start Y	Width	Height	
Þ	1	1	1	0	0	128	128	
	1	1	2	128	0	128	128	
	1	1	3	256	0	128	128	
	1	1	6	0	128	128	128	
	1	1	5	128	128	128	128	
	1	1	4	256	128	128	128	
							C	р. <sup>,</sup>

Fig. 10-9 Complex screen configuration

Add: a new window pop up and the initial coordinates and load pixel of each scan board can

be set.

Edit: edit added information of scan board.

**Delete**: delete the selected information of scan board from the list.

Clear: clear all scan boards in the list which has been set.

# 11 Program Editing and Publishing by Applying PlutoManager

Click [Search Now] on the main interface of PlutoManager to search LAN terminals, specified IP terminals and part of terminals of LAN. Searched terminals could be added to specified groups.

#### Dual-mode Multimedia Player PBOX150 User's Manual

eration Configuration Language Help	Add Display in LAN
	Set searching mode
te PlayList Publish PlayList Play Management Display Control	Search all displays in LAN
splay Information	Display IP will automatically adjust to the same once sent search contenand from computer!
	Ostaliz © Search by P address 172 16 1 84
······································	Search Now O Search particular displays in LAN
Online Virtual Offline Total	Sart P.Adaves: 172 . 16 . 1 . 84
0 0 3 3	End P Address 172 16 1 04
rver Information	Add searched display to
P Address: 192 168 159 1 / 172 16 3 218	Oroup Name



# **11.1 Editing play program**

Select edit mode.

Operation	Configuration Langu	age Help			
	Edit Mode Configu	ration 💊			
Create PlayLis	Default PlayList Di Authorization Con Software Configu	rectory figuration ration	Display Control		
Display Infor	mation				
	+ 💻 +	-	: 🎰	Edit Mode Configuration	<b></b>
Online	Virtual Connection	Offline	Total	Current edit mode of program	
0	0	3	3	Bill Board	💿 Sign
Server Inform	nation				
P	Address: <u>19</u>	2.168.159.1 / 17	2.16.3.218	ОК	Cancel

Click Create Play List on the toolbar of PlutoManager main interface to enter the Play program creating page shown as below.

Image: Several Segment     Image: Several Segment     Image: Common Window1     Image: Common Windo	Create play file NewList.plp	ym					- 8	x	
Play Program       Image: Common Window!         Image: Common Window!       Image: Common Window! <td>New Open</td> <td>Save</td> <td>Save as</td> <td>Set</td> <td>Play</td> <td>Stop</td> <td>Publish</td> <td>-</td> <td></td>	New Open	Save	Save as	Set	Play	Stop	Publish	-	
Play Program   Page1   Common Window   x   0   x   0   x   0   x   0   x   0   x   0   x   0   x   0   x   0   x   0   x   0   x   0   x   0   x   0   x   0    0   0	-			Window E	diting Area				
Paget         Common Window 1         x       0         y       0         Width:       720         Height:       60         Image:       0         Please select the tem in toolbar         Please select the tem in toolbar         Add Media to Window.	Play Program     General Segment1	i 🗈 🖻 🕇	+ *						
Common Werd x 0 x 0 w Width: 720 Height: 480 x	Page1	Name: Com	mon Window1						
Please select the tem in toolbar     Please select the tem in toolbar     Add Media to Window.	Common Winde	x. 0	÷γ: 0	Width 720	+ Height	480 🚔			
Please select the Add Media to Window.		0			• •	n ¥ >  -	+ 1 a		
Please select the term in toolbar Add Media to Window.					u w				
Please select the tem in toolbar         Add Media to Window.									
Please select the tem in toolbar         Add Media to Window.									
Please select the tem in toolbar         Add Media to Window.									
Please select the Revision Add Media to Window.									
Please select the term in toolbar Add Media to Window.									
Please select the Read Media to Window.									
Please select the Review Add Media to Window.									
Please select the tem in toolbar       Add Media to Window.         Show window name and index       Image: Show window name and index									
item in toolbar		Please sele	ect the 🔥 📃 📖					1	
Show window name and index		item in tool	par 15' Ad	ld Media to Window	ι.				
Show window name and index									
Show window name and index									
Show window name and index									
Show window name and index									
Show window name and index									
ndex									
	index								

Play program can be saved with the suffix of plpym. It is composed of several common segments. In addition, it also contains one or more inserted segments. The common segments and inserted segments are composed of one or more pages, and each page is composed of one or more windows. The windows can be divided into Common Window, Clock Window, Scroll Text Window, Countdown Timer Window, and Weather Window. The Common Window can add one or more different types of media. Play program structure is shown as follows.



# **11.2 Editing Sign list**

Operation Configura Edit Create PlayLis Soft	tion Language Help Mode Configuration aut PlayList Directory horization Configuration tware Configuration	Display Control				
Display Information 	Virtual Offline onnection 0 1	Total 1	Q	Details Search Now		
Server Information	<u>172.16.3.183</u>				-0	
	Edit Mode Configuration	m @ Sign	×			

Click <sup>Create PlayList</sup> to open the main interface of Edit Play List. The interface is divided into many windows. Each window is named according to the functions as the following figure.

Edit playist - NewList spiby		- = ×
🗟 💐 🖥 🗊 · 🔘 ·	🔟 🚟 🜔 · 🔘 🍪 ·	
	1 🐨 🕞 🔤 🐰 👪 🛳 🔍 x 🗉 🔍	
1 Albey Trees		Name Analog dock Hour Scile Reclarge 5 5
D.	Page adding media window	B         J         U         S           B         J         U         S           Monder Scale         3         Q           Rectange         3         Q           Hour:         -         Monder Scale           Second         -         -
V Select Sign	Click the black area to input characters!  Date Time Day Play lines	Play duration
animatic operating on the second se	Window 3	Week Window 5 •• ## • 16 •• 10 7 11 5
Window 2	T, Y 0, 0 T+H 300x200	Date month day + +

Fig. 11-2 Page function distribution

# **11.3 Setting the size of display window**



to set play window information.

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Set Pl	ay Windo	w Information	x
Pla	iy window	resolution	
۲	Auto		Select Display
	Width:	720	
	Height:	480	
0	Manual (	Customized	Resolution)
	Width:	720	A V
	Height:	480	A V
	0	K	Cancel

Fig. 11-3 Play window information

**Size of play window**: width and height can match the selected display and adjust automatically.

Play window size

- > Set size manually: Set based on the actual size of display screen.
- > Select client: Select client from terminal list to directly read the size of terminal display.

# **11.4 Configuring playlist directory**

After clicking save in playlist editing page, playlist will be automatically saved to default directory (factory default: My Documents\NovaPluto\ PM-PlayList). Users can configure the directory of playlist. Re-configuration of playlist directory might cause unsuccessful playlist publishing. Therefore, users are recommended to read the contents of this section carefully. Operating steps of the configuration of playlist directory:

Click Configuration button in the main interface of PlutoManager. The following window will pop up:

Configure playlist save path	X
Save direct \Administrator\My Documents\NovaPluto\PM-PlayList\	
Defay	alt path
OK	

Fig. 11-4 Configuration of playlist directory

### 11.5 Publish

### 11.5.1 Online publish

1) Click on the main interface of PlutoManager or directly click on Edit play list window to

enter the interface of Play List Publish.

	👌 PlayList Publish				-	= X
	Publis	h Standard PlayList	Publish Temporary	Content	P	ublish E 🖣 🕨
ľ	PlayList list					
	Total number: 2					<b>•</b>
	PlayList	Resolution	Convert Status	Send	Export	Delete
	20150819051934	128 * 128	Normal(5.98K)	<u> </u>	C C	×
	20150819044652	128 * 128	Normal(6.02K)	<u>ئ</u>	<b>1</b>	×
	JP					

Fig. 11-5 Play program publishing page

Online publish is to publish play program to the storage space of terminal (online) via network.

Operating steps:

Refresh: click to view allcompeleted Play programs;

Clear: delete all current Play programs and files;

**EXPELETE**: once deleted, all files related to Play program will be gone no matter converted or not;

**Send**: send play program;

Export: export Play program to USB drive.

2)Select play programs which is going to be converted. More play programs can be selected

by pressing "Ctrl" . Right click mouse to choose "Convert" and the following window will

pop up. Click " Advanced" to set detailed parameters. Converting will depend on default

parameters without advanced setting.



Fig. 11-6 Convert video

3)Click the corresponding button of "Publish" after conversion of the play program to enter

the interface below.

Total number: 2					
PlayList	Resolution	Convert Status	Send	Export	D
20150619051934	120 - 120	Normal(5.96K)	<u>т</u>		
			_	_	

Fig. 11-7 Conversion completed

Select by client: Directly check the client (who' s online) which Play program will be sent to;

Select by group: Publish Play program by group;

	Client name	P	Screen size	Status	Group name	1
	Pluto2012-FGH	192.168.0.238	2048 * 256			
	sn:108-WBL	192.168.0.6	384 * 256			
-	pluto2	192.168.0.130	256 * 128			

Fig. 11-8 Choose the client to be sent



System will choose to play by adopting self-adapting window if the size of terminal display and play program display is different and users still ask for sending play program, which may lead to distortion of the image on terminal display.

4)It is suggested to check "Pause client playing while sending media". Set play program and send it to the storage location of terminal. Click "Next" to start sending and the interface after it has been sent is shown in the figure below.

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ne Send				
elated information				
Play control in sending files				
Pause display playing while It may cause sl media!	sending media ow sending speed if displ	ay is playing while	sending	
PlayList save directory in display	,			
Integrated memory	SD card	问 U disk		
Automatically update the font				
Updating the font of does n	ot exsit automatically			
After updating	the font, the display will a	utomatically reboo	ot!	
vedia format convert				
			Advanced	
🎾 Notice: Will be	converted with the defaul	t parameters!		
			Y	

### Fig. 11-9 Send related information

c	Online send Send play-program Current send play-program Client list of recive play-program		program play-program		NewList-2	. plym	×	
		Client name	IP	Status	Group	Publish result	Operate	
	1	Pluto2012-FGH	192.168.0.238			Succeed	Resend	
	2	sn:108-WBL	192.168.0.6			Succeed	Resend	
	3	pluto2	192.168.0.130			Succeed	Resend	
						Last	Resend	

Fig. 11-10 Send successfully

#### 11.5.2 Offline export

Offline export is to export current play program to USB drive and then connect the USB drive

to terminal to play.

#### **Operating steps:**

1)	Click	
L /		

on the interface shown in Fig. 11-3 to enter setting interface of Offline export.

Playlist information	n	
Playlist name:	Office.plpst	
Export playlist to-		
V disk:	I:\ Search	h
After V disk connect	ted client	
Play after co	pying to other storage devices	
🔘 Integ	grated memory ③ SD card	

Fig. 11-11 Offline export

Play after copying to other storage devices: under this mode, Play programs and programs

will be copied to selected storage device to play after connecting USB drive to client.

Play without copying: under this mode, Play programs and programs will be played directly

by Asynchronous system connecting to USB drive.

2) Click "Export" to export current play program to USB drive after setting completed.



Fig. 11-12 Export completed

#### 11.5.3 Publish temporary content

Emergency insert play means to insert some media or Play programs which need to be played

urgently on the client display during normal playing. Immediate play and delay play are optional by the degree of urgency. Delay time can be set freely.

Publish Standard PlayList Publish Temporary Content	•
Emergency insert play	
and gang many	
Content type:	
Window size: Width: 200 Choose display	
Height: 200	
Play duration: 0 🚖 Hour 0 🚖 Min 50 🚖 Seco	
Start time:      Immediate	
Delay           0         +         Hour         0         +         Min         10         +         Seco	
Send	

Click Publish Temporary Content to enter the emergency insert play page.

Fig. 11-13 Publish Temporary Content

#### Content type: file, playlist

: Click to import local files or Play program.

Window size: size of the current client display;

Play duration: total play time of inserted media file or play program.

#### Start time:

- Immediate: inserted files of media or play program will be played immediately once successfully published;
- Delay: the playing will be delayed for a period of time that can be set after successful publishing.

Send

: Click to send insert contents to specified terminals.

### 11.5.4 Immediate notification

Immediate notification is mainly to publish some text information. Once published, the www.novastar.tech 39

information will be played immediately on the terminal display prior to all other tasks.

Return to the main interface of Play List Publish and click "Immediate Notification" shown as

below:

PlayLis	st Publish						-		х
h Standard	l PlayList		Publish Tem	porary Conter	t 🌒	Publish Err	ergency Mes	sage	••
Immediate	notificatio	n							
Position Left:	0	* *		Width: 200	-				
Тор:	0	-		Height: 30	-				
Play mod	de p times:	3	Play du	ration: 0	Hour 1	0 🚔 Min	0 ෫ Seci		
Text type	e								
Scrool	olling text	Sing	le line text	Static	text	Rich text for	ormat		
Text	Property								
hello!								• [	<ul><li>✓</li><li>X</li></ul>
Charact	ter count:		6 <= 700						
								Send	

Fig. 11-14 Immediate notification

Position: Position of immediate notification textbox on the display;

- ➤ Width: Textbox width ≤ window width;
- ➤ Height: Textbox height ≤ window height;
- Left edge: If the coordinates of upper left corner of the window is (0, 0), the left edge value is the distance between left edge of textbox and left edge of the window, i.e. x coordinate.
   Left edge ≤ window width textbox width;
- ➤ Top edge: Upper edge value is the distance between the upper edge textbox and the upper edge of the window, i.e., y coordinate. Upper edge ≤ window height - textbox height;

#### Play mode:

- > Loop times: Set loop times of immediate notification
- > Play duration: Play duration of immediate notification

#### Text type:

- Scrolling text: Editable text, transparency, background, text effects, text color, font, loop, scrolling speed, play duration, etc.
- Single line text: Editable text, transparency, background, text effects, font, entrance/exit effects, retention time, etc.
- Static text: Editable text, transparency, background, paragraph, font, play duration, etc.
- Complex text: Text editor, transparency, background, entrance/exit effects, retention time, etc.

Send : Click this button to send immediate notification to specified terminals.

### 12 Remote Cluster Play& control system

Provide the terminal display access to the Internet and register terminal on the service platform provided by Nova through browser. Terminal display could be remotely controlled through center management software to allow operations such as remote media and play program, monitoring of display status, remote control of display brightness and power switch etc.

Nova display cluster management can be divided into three parts: service platform: NovaCloud(download link: http://www.novaicloud.com/), management centre software Mc-go(download link: http://www.novaicloud.com/), terminal control software synchronous system software is MarsSite while asynchronous system is embedded with terminal software. Network structure of cluster management program of Nova display is as the following figure:

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Following the operating steps below in remote cluster program:

- Software installation. Install MarsSite in synchronous system and Mc-go in management center.
- Information register. Open cluster system website<u>http://www.novaicloud.com/</u> through browser to register a free account.
- 3) Login of Cloud sever. System management according to groups which make it convenient for unified management and sending play program.
- 4) Configuration of terminal software including three parts: terminal setting, play setting and picture monitoring.
- 5) Programming, publishing, log management, picture monitoring, system monitoring and terminal monitoring in management center.

# **13 Specifications**

Input Power	AC100 ~240V 50/60Hz				
Overall Power Consumption	15W				
Operating temperature	-20℃ ~ 60℃				
Storage temperature	-40℃ ~ 80℃				
Size	242×137.1×34 (mm)				
Net weight	718g				