AV KVM Over Fiber Matrix Switcher

User Manual

Version 2017 V1

Contents

Welcome

About This Manual

This Manual is applicable to AVCLink (AV KVM Over Fiber Matrix Switcher). Thank you for choosing DigiBird, please read this manual carefully before using the product.

All pictures in this manual are only for reference, information in this document is subject to change without notice.

Cautions and Notes

The following symbols are used in this manual:

	Notes	The necessary hints, additions and explanations to help you to understand the content of the manual more clearly.
	Cautions	This symbol indicates best practice information to show recommended and appropriate manner to use this product efficiently.
	Warnings	The important operating instruction that should be followed to avoid any potential damage to hardware or property, data loss, or personal injury.

The following spellings are used in this manual:

Spelling	Description
<key>	Description of a key on the keyboard
<key + key>	Press keys simultaneously
<key, key>	Press keys successively
[Menu item]	Description of a menu item in the software

Copyright

Trademarks

All trademark and trade names mentioned in this document are acknowledged to be the property of their respective owners.

Disclaimer

While every precaution has been taken during preparation of this manual, the manufacturer assumes no liability for errors or omissions. The manufacturer assumes no liability for damages resulting from the use of the information contained herein.

The manufacturer reserves the right to change specifications, functions, or circuitry of the product without notice.

The manufacturer cannot accept liability for damage due to misuse of the product or due to any other circumstances outside the manufacturer's control (whether environmental or installation related). The manufacturer shall not be liable for any loss, damage, or injury arising directly, indirectly, incidentally, or consequently from the use of this product.

Introduction

DB-AVCLink is a powerful KVM matrix switcher, which completely transmits audio, video and KVM signal via fiber optical or twist pair without losses and latency, widely used in application of utility, security, government, and financial industry, etc.

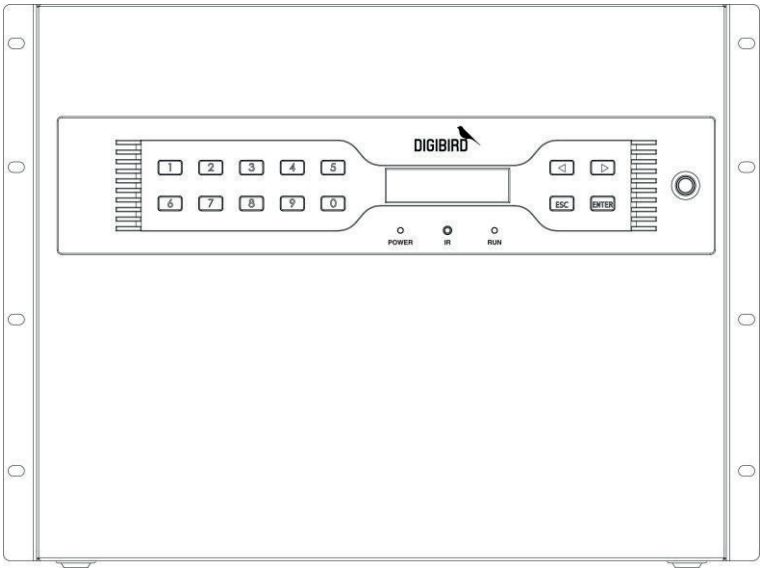
DB-AVCLink consists of *Matrix Device* and *Optic Transfer Unit*. The chassis sizes are 8U and 26U; and the *Optic Transfer Unit* means Transmitter and Receiver.

Matrix Device

Front Panel

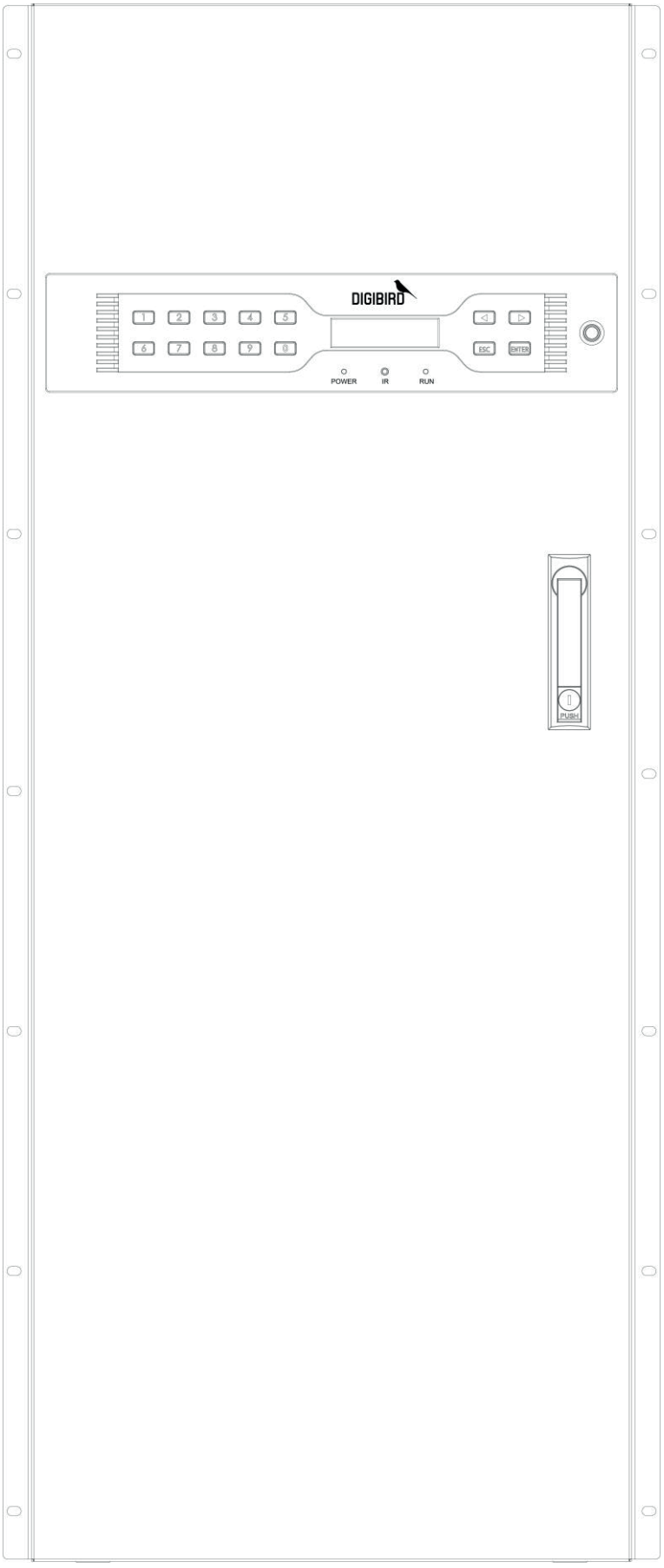
8U chassis (160x ports)

The front panel of the 8U chassis is shown as below. You are able to change the IP address via the front panel，see Set IP Address for details.



26U chassis (576x ports)

The Front Panel of 26U chassis is shown as below. You are able to change the IP address via the front panel，see Set IP Address for details.


DIGIBIRD
1
2
3
4
5
6
7
8
9
0
ESC
ENTER
POWER
IR
RUN
PUSH

Rear Panel

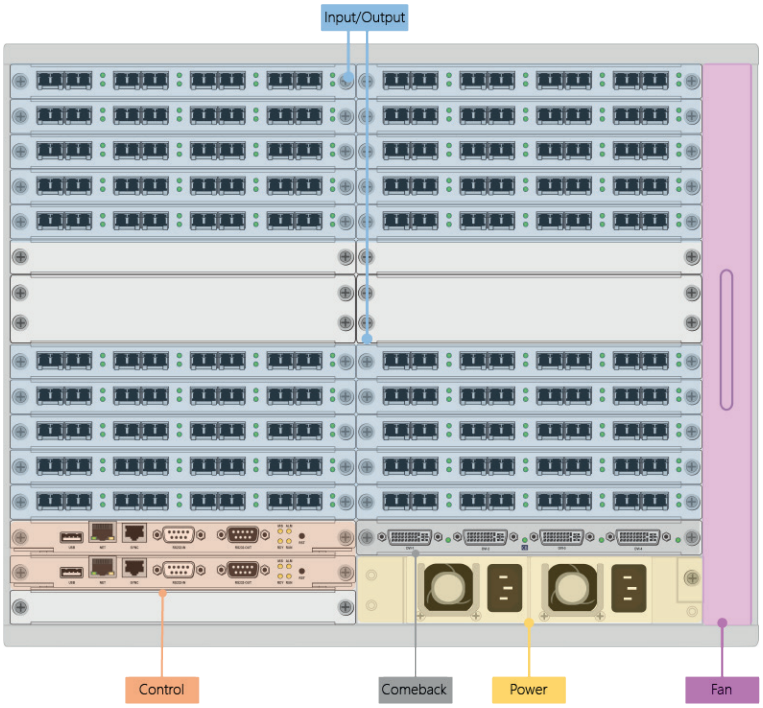
The rear panel consists of below main slots:

Input / Output Port	Mixed dual-optical I/O ports, which can be defined to be input when connected with the transmitter/ Tx or to be output when connected with the receiver/Rx.
Input Slot	The slot to populate the input card, that includes eight (8x) pairs of dual-optical ports to be connected with the transmitter/Tx.
Output Slot	The slot to populate the output card, that includes eight (8x) pairs of dual-optical ports to be connected with the receiver/Rx.
CMC Slot	The Confidence Monitoring Slot to populate the CMC (Confidence Monitoring Card) card for local monitoring.
Control Slot	Slot for control board. There are two control board to ensure the system running as normal.Populated with Dual Control cards for backup.
Power Slot	The slot for the PSU (Power Supply Unit).
Fan Slot	The slot for the cooling fans with auto adjustment feature.

Please tighten the screws when insert the card into the slot.

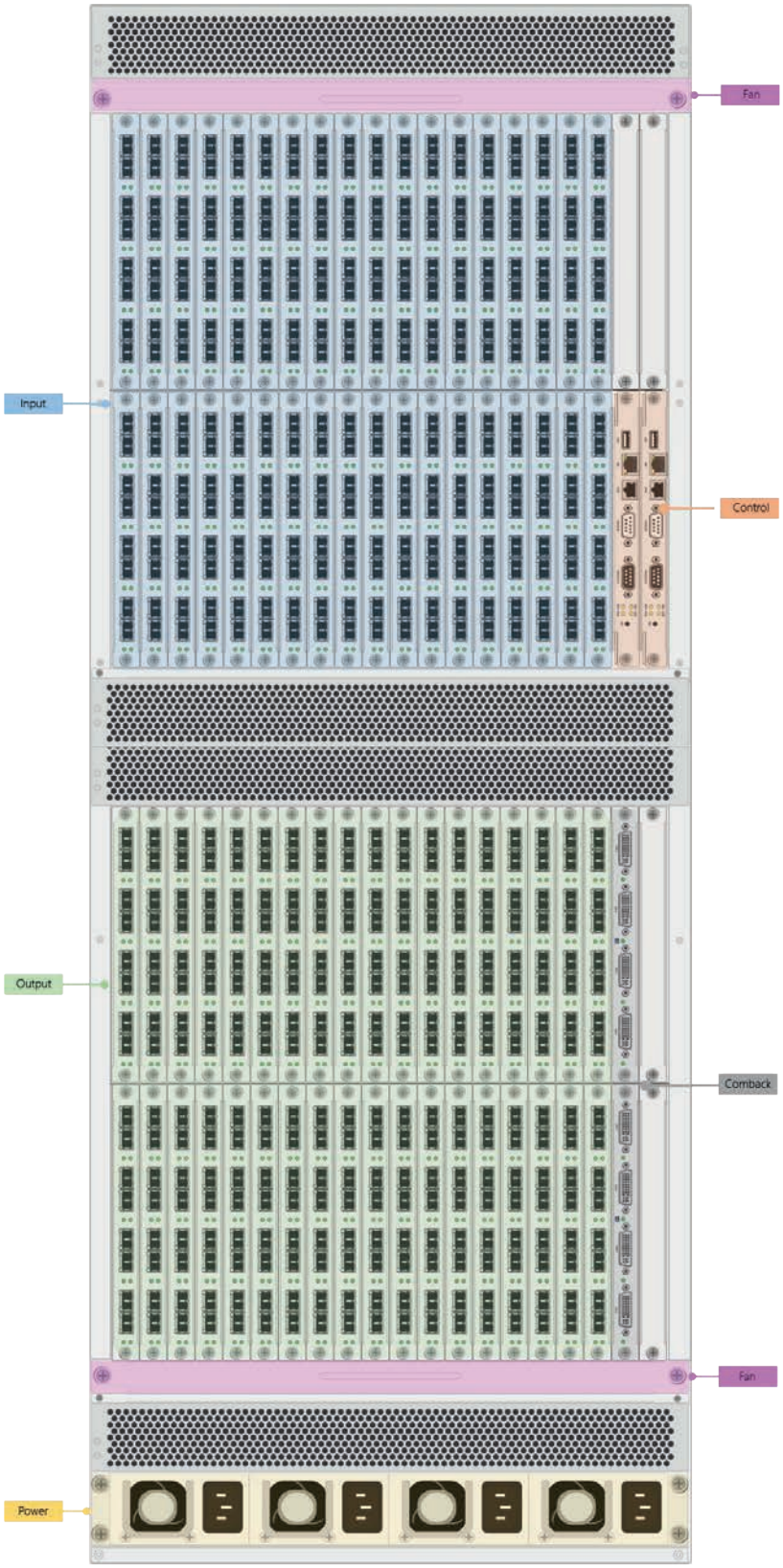
8U chassis (160x ports)

The 8U chassis includes twenty (20x) I/O slots (no matter input or output), two (2x) control slots, one (1x) CMC slot, and two (2x) PSU slots.



26U chassis (576x ports)

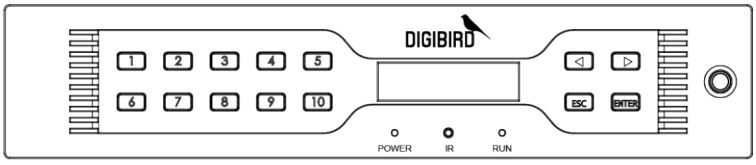
The 26U chassis includes thirty-six (36x) input slots, thirty-six (36x) output slots, two (2x) control slots, one (1x) CMC slot, and two (2x) PSU slots.



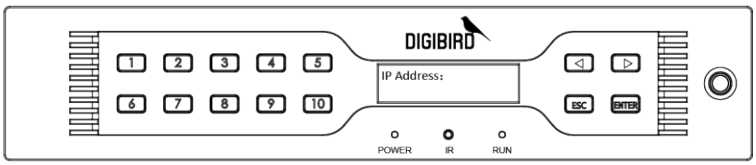
Set IP address

Operation	OSD

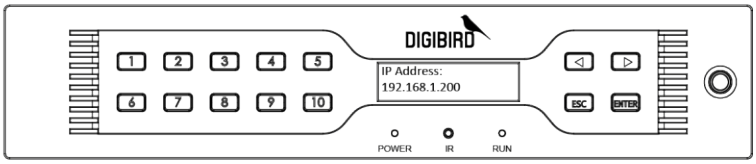
1 START



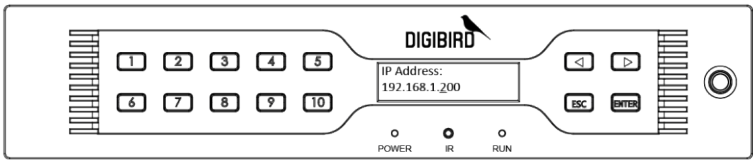
2 ENTER



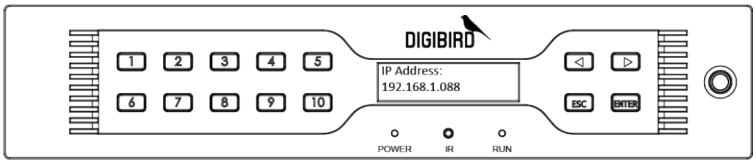
3 ENTER



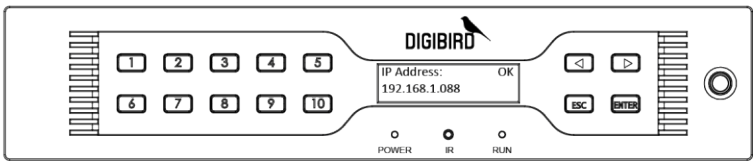
4 ◁ ▷



5 1 2 3 4 5 / 6 7 8 9 10



6 ENTER



Indicators

POWER	Power indicator.
IR	IR indicator. (Reserved for future use.)
RUN	RUN indicator: illuminate when operating normally.

Optic Transfer Unit

DVI Transmitter

Front Panel

Rear Panel

DVI Receiver

Front Panel

Rear Panel

HDMI Transmitter

Front Panel

Rear Panel

HDMI Receiver

Front Panel

Rear Panel

4K HDMI Transmitter

Front Panel

Rear Panel

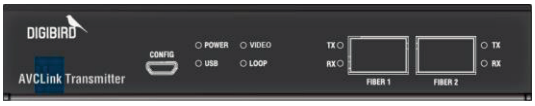
4K HDMI Receiver

Front Panel

Rear Panel

DP Transmitter

Front Panel



Rear Panel

4K DP Transmitter

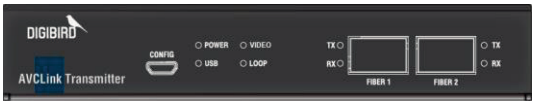
Front Panel

Rear Panel

VGA Transmitter

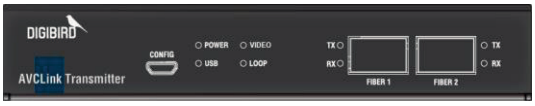
Front Panel

Rear Panel



SDI Transmitter

Front Panel



Rear Panel

SDI Receiver

Front Panel

Rear Panel

Setup

For the first time, users are recommended to test your matrix prior to install for your project. This will assist you to avoid any cabling problems, and start to integrate with your system more efficiently.

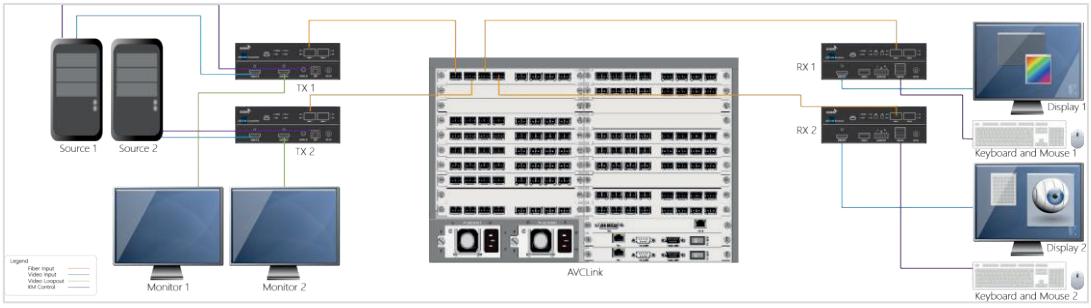
Setup of the matrix

1. Install the I/O cards (usually be populated well by DigiBird)
2. Connect RX and TX to the I/O ports
3. Connect keyboard, mouse, and monitor to the RX
4. Connect sources (server, DVD, computer, media player, workstation…) to the TX
5. Connect the matrix to the power supply
6. Connect the control computer to the control card via RJ45 or RS232 port.

Software

Darwin AVCLink Control System is a web-based software platform.

This manual is based on an 8U Matrix. The connection diagram is shown as below.

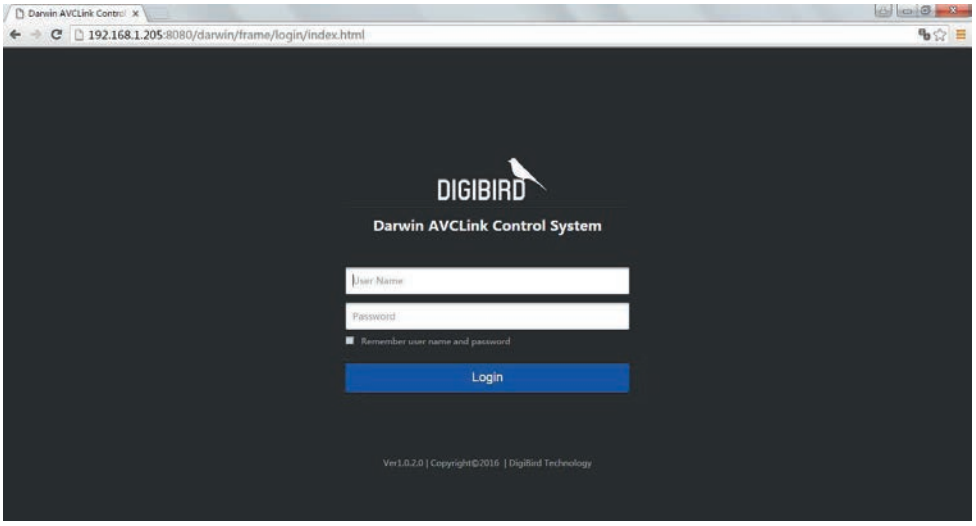


Login

You should open the Browser, such as chrome, to visit the Darwin AVCLink Control System. The control computer and the Matrix must be in the same LAN network under the same domain.

- Open the Chrome and input the IP of the Matrix, then press the **<Enter>** key. The default IP address of the Matrix is 192.168.1.200. You can change the IP address through the push buttons on the front panel, see "Set IP address" for details.

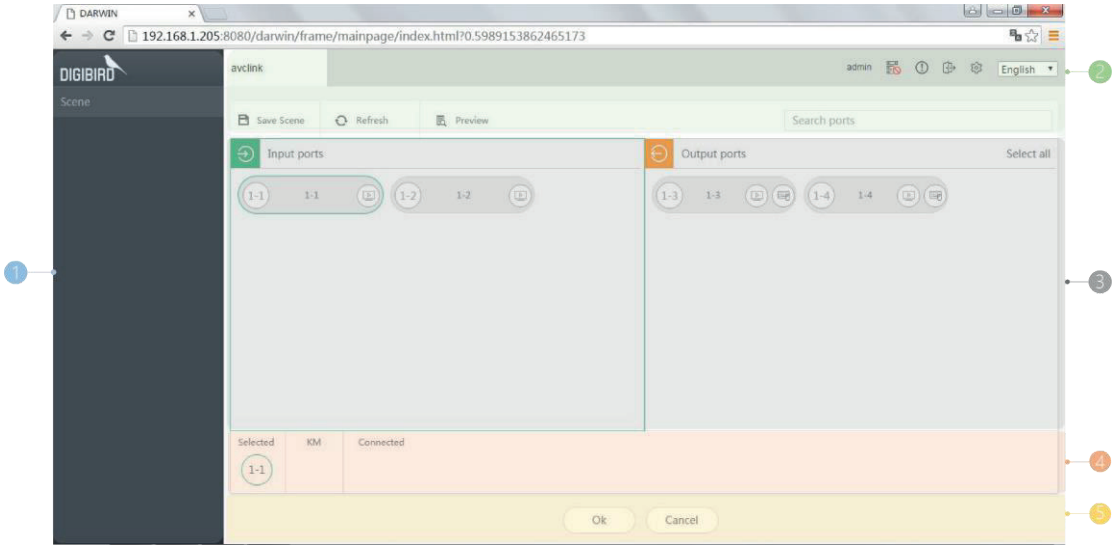
- You can input the user name and password in the Login page. The default user name is "admin", the password is "123", which can be changed after login.



Overview

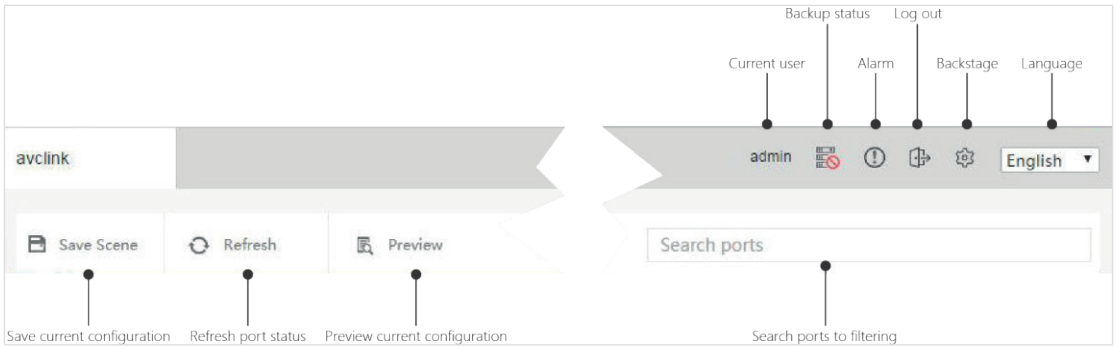
Dashboard

The dashboard is shown as below when you login successfully.



1 Scene	If you save a configuration as a scene, the scene will be listed here. You can recall, rename, delete, or preview a scene under right-click menu.
2 Toolbar	The toolbar includes some function buttons, you can enter the dashboard, logout, save scenes, refresh system, preview configuration, and search ports through the filter.
3 Input /Output Ports	Here lists all the Input /Output ports you set, and the system will automatically detect the available ports.
4 Switching Relations	In this area, system will display the input and output ports that you selected.
5 Execution Area	Click the **[OK]** button to confirm, system will execute switching and KVM operation. Click the **[Cancel]** button to abandon.

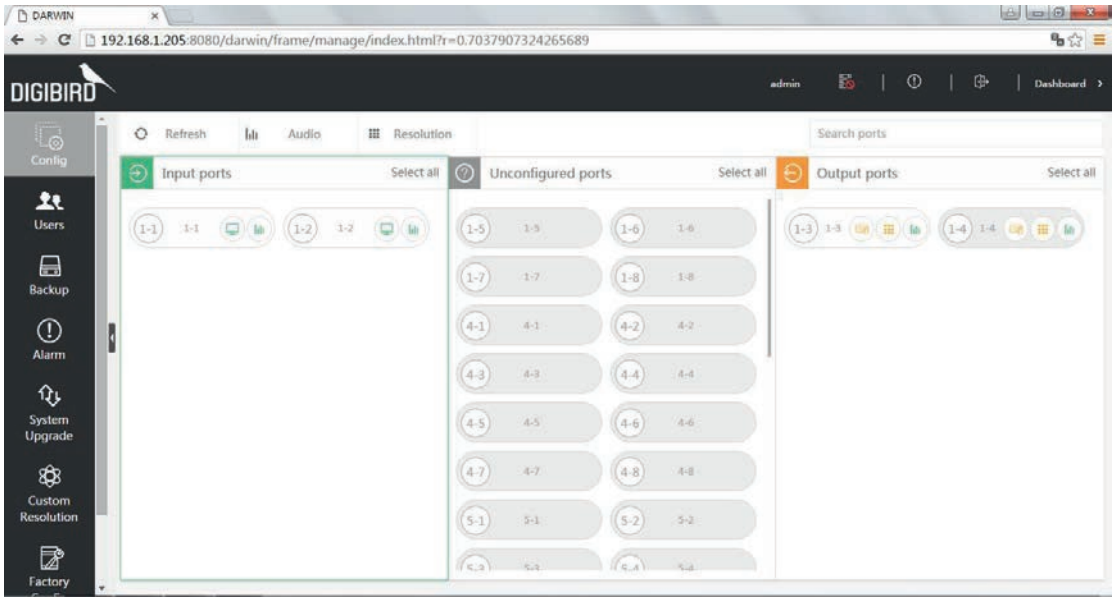
Tool bar details:



Settings

Click the icon  in the toolbar to enter the settings. The **[Settings]** includes: Config, user management, backup, alarm, system upgrade, and device license etc.

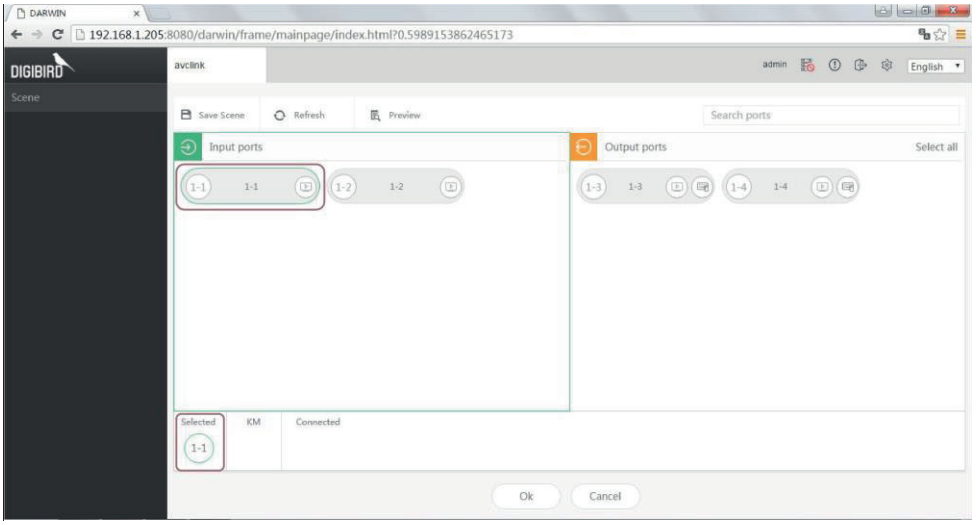
The 8U's port property supports custom-defined. When the matrix you use is an 8U chassis, you can see the [Unconfigured ports] in the middle of the page. The unconfigured ports are not connected to the sources or monitors and can be preconfigured as input or output, see Configure Ports for details.



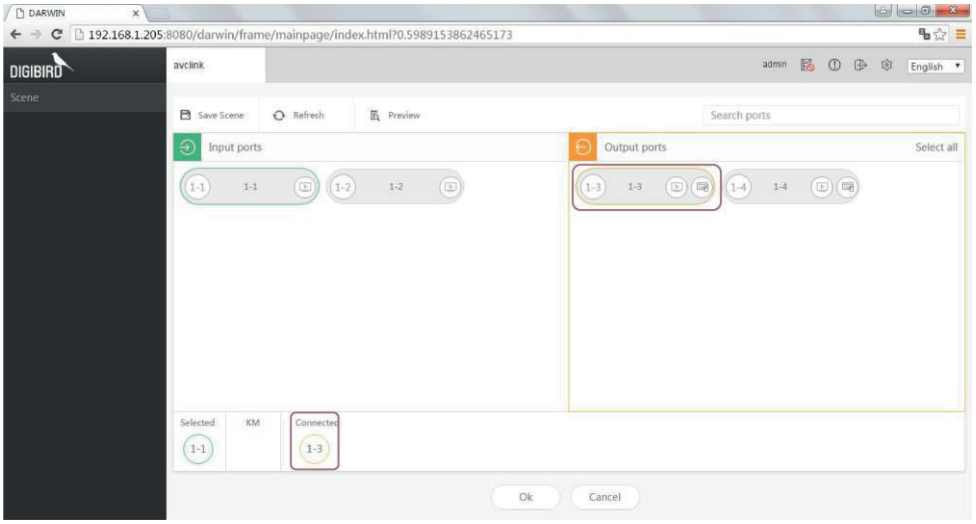
Switch

Switching a video resource to any display(s). The operation is as follows:

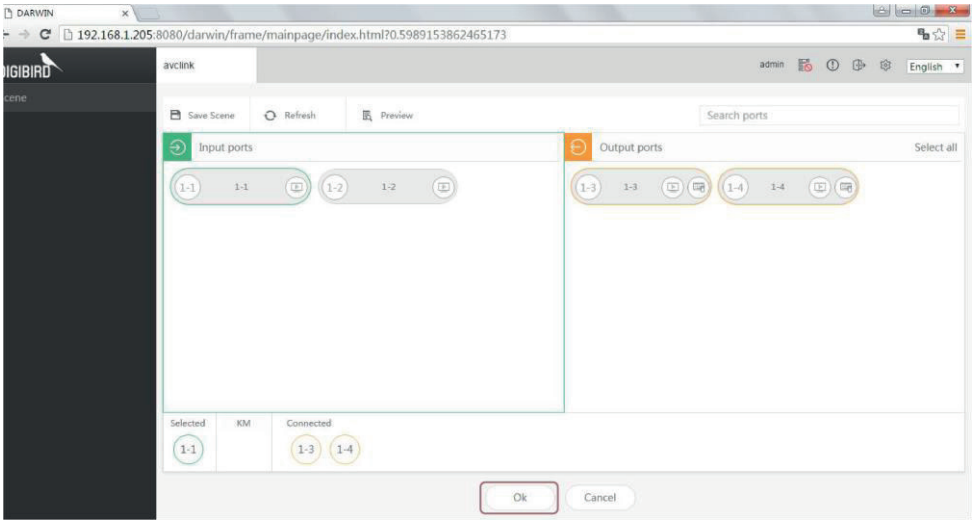
- Select an input signal in the **[Input ports]** list.



- Select any output port(s) in the **[output ports]** list which you want to switch to. You can also select all output ports by clicking **[Select all]** button on the upper right corner of the **[Output ports]** list. (To cancel a selected port, click the port again.)



- Click **[Cancel]** to abandon your selection.
- Click **[OK]** to enable the switching.



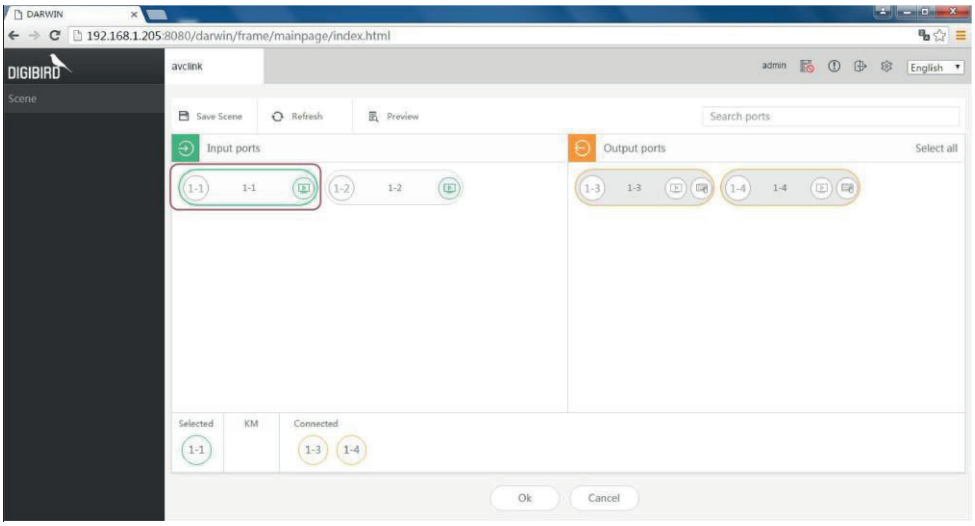
KVM

Set KVM channel

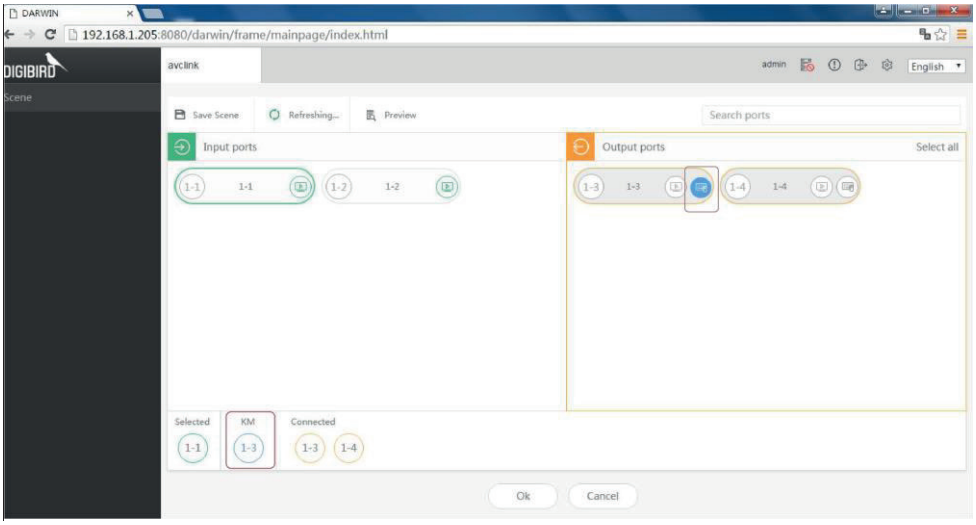
If you want to use the keyboard and mouse (referred as KM hereafter) to switch and control all resources, you should connect the keyboard and mouse to the RX through the USB cable, connect the resources to the TX through the USB cable as well.

Then you are able to setup via this software:

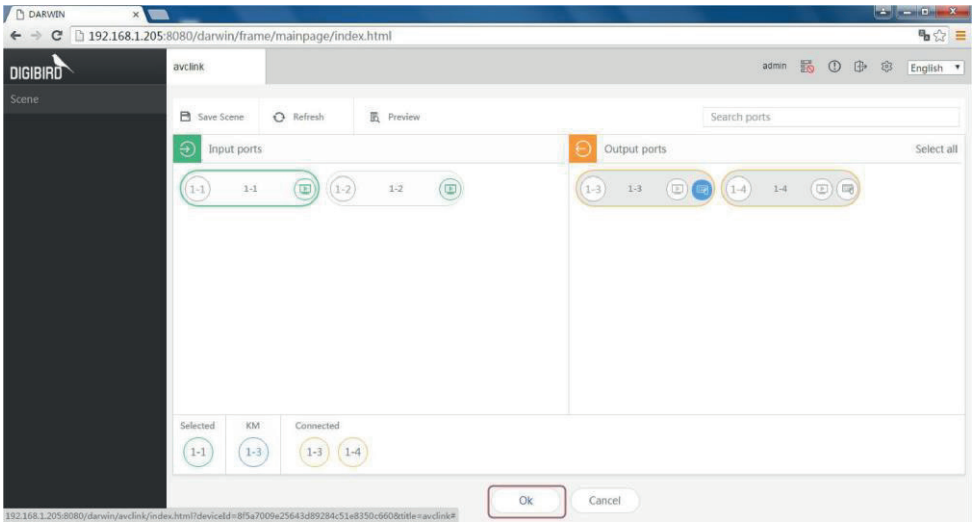
- Select an input port, then the selected output ports will be listed on the right.



- In the **[Output ports]** list, click the icon  of an output port which you want to use KVM via. The **[Switching Relations]** list will show the output ports you selected.



- Click **[OK]** button, then you can control the selected resource that connected to the TX by the KM.

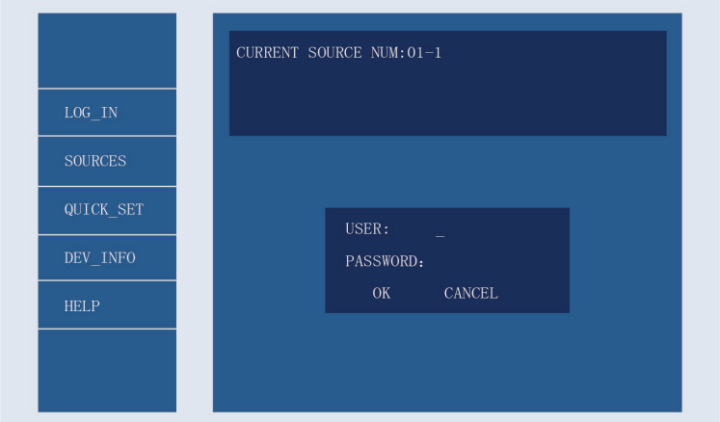


OSD

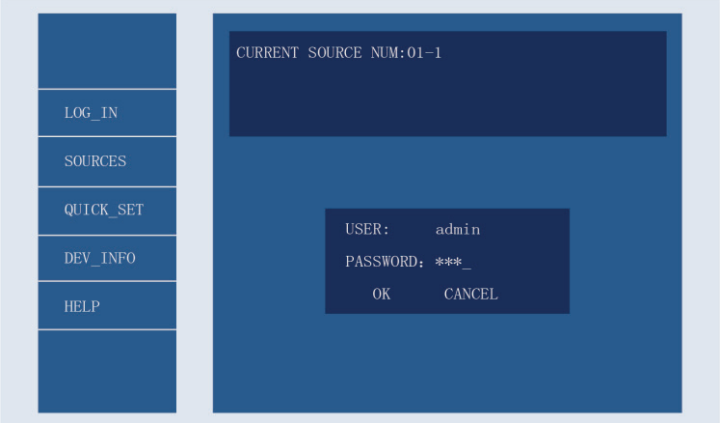
Press **<Ctrl + Shift + Alt + I>** keys on the keyboard that connected to the RX to enable the OSD. You are able to switch any resource or enable the KVM.

1、Login

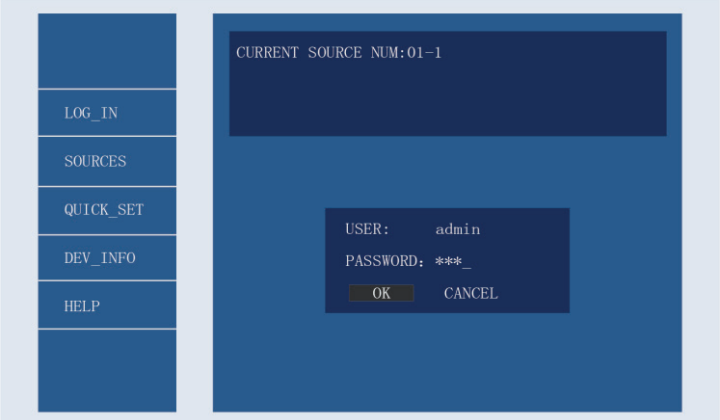
- Press **<Ctrl + Shift + Alt + I>** on the keyboard to enable OSD.



- Input username and password (Default username: admin; password: 123).

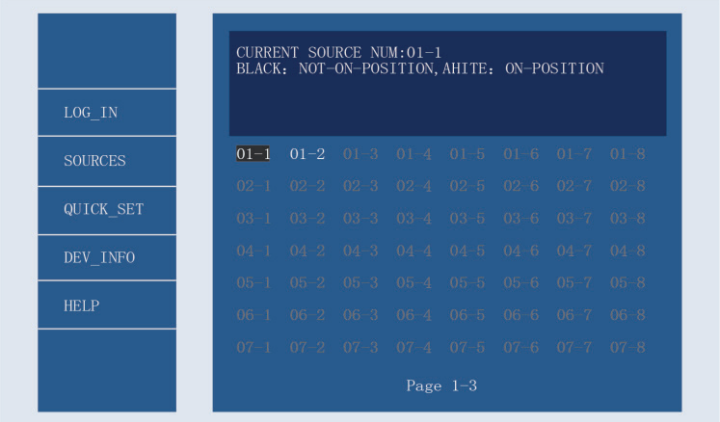


- Press **<Enter>** key to move the curser to **[OK]** button, and press **<Enter>** key again to login.

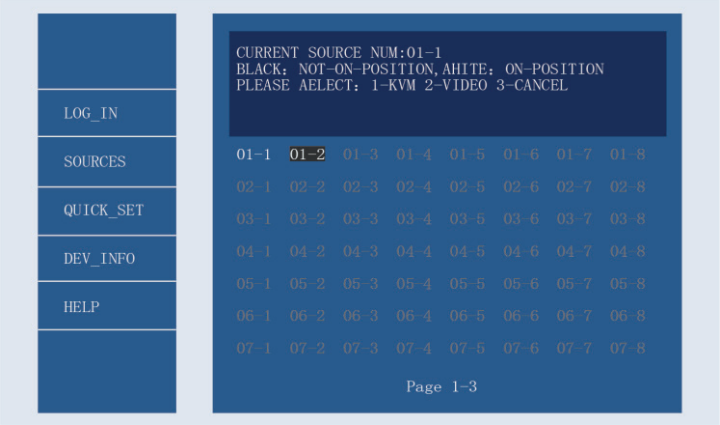


2、Switch

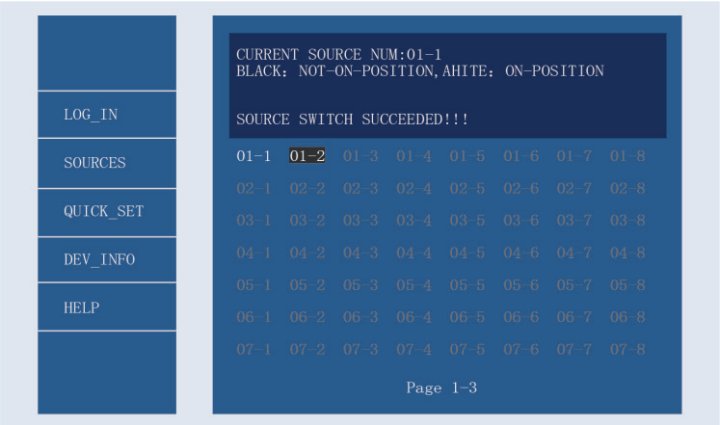
- You will enter the **[SOURCES]** interface after you login. The **[SOURCES]** interface will list all ports online and offline, the gray highlighted means that offline and the white one means that on line.



- Press **<↑><↓><←><→>** keys to move the curser, then press **<Enter>** key again to select one port.

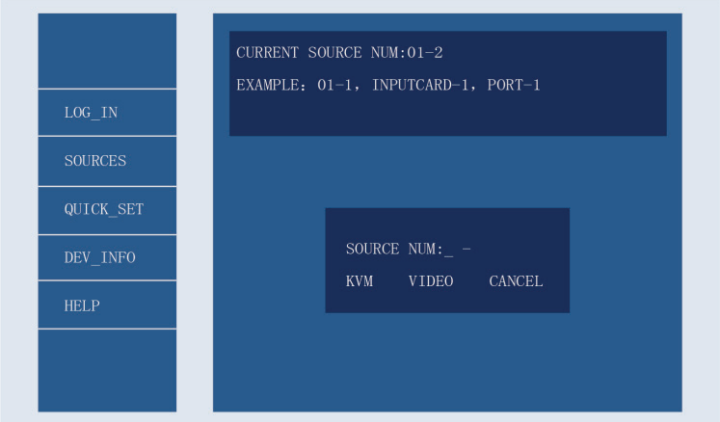


- There are three options: press **<1>** key to enable KVM; press **<2>** key to switch the rsource; press **<3>** key to cancel.

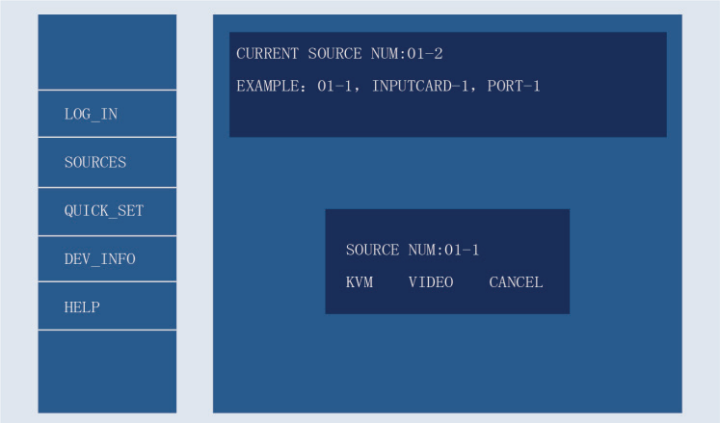


3、Quick switch

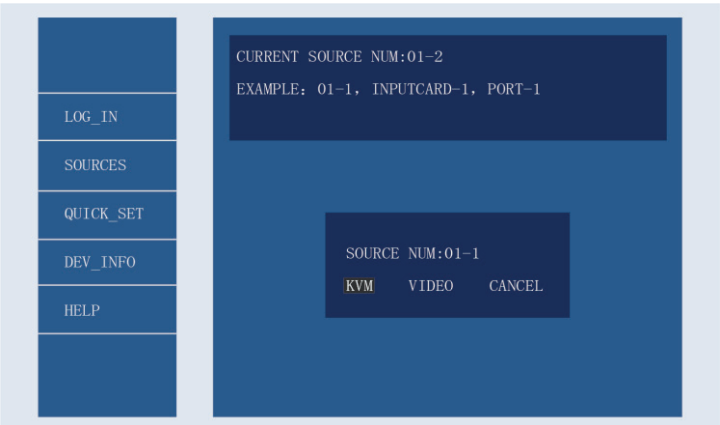
- You can press **<Esc>** key to return upper menu. Press **<↑><↓>** keys to the **[QUICK_SET]** option > press **<Enter>** key to enter the menu.



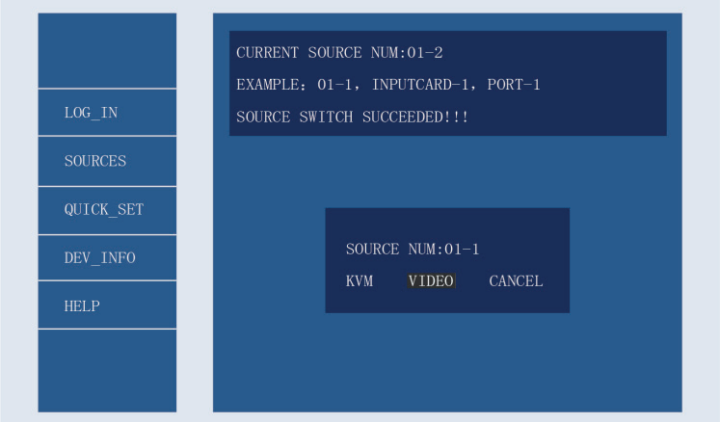
- Input the number of the input port. For example: if you input “01-1”, the front “01” means the sequence number of slot, the “1” means the sequence number of the port (01-1 means the first port on the #1 input card, each card has 8x ports).



- Press **<Enter>** key, the curser will move to below options: **[KVM]** to enable KVM to the source; **[VIDEO]** to display the source; **[CANCEL]** to adandon the operations.

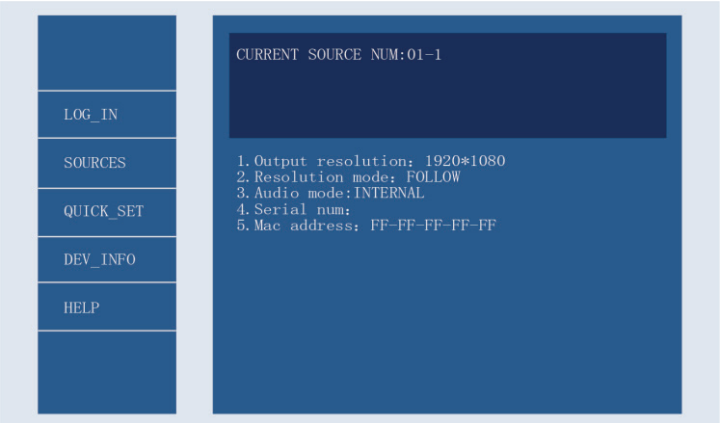


- Use **<←><→>** keys to select, then press **<Enter>** key to confirm.



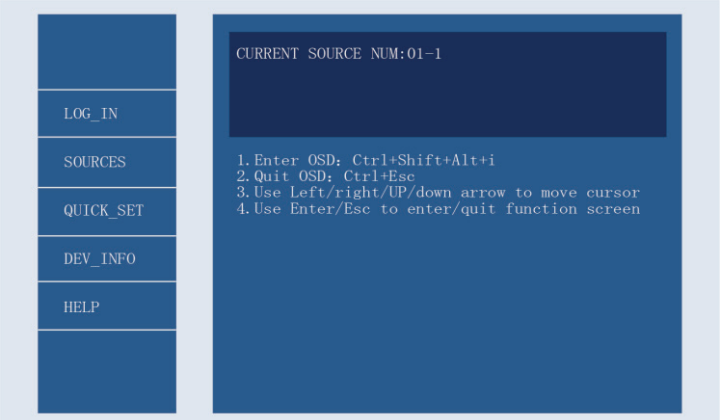
4、Device info

Press **<Esc>** key to return the menu bar > select **[DEV_INFO]** option> press **<Enter>** key. The **[DEV_INFO]** interface will show you the output resolution, resolution mode, audio mode, serial number, and the mac address.



5、Help

Press **<Esc>** key to return the menu bar > select **[HELP]** option > press **<Enter>** key. The **[Help]** interface will show you the shortcut of OSD operation.

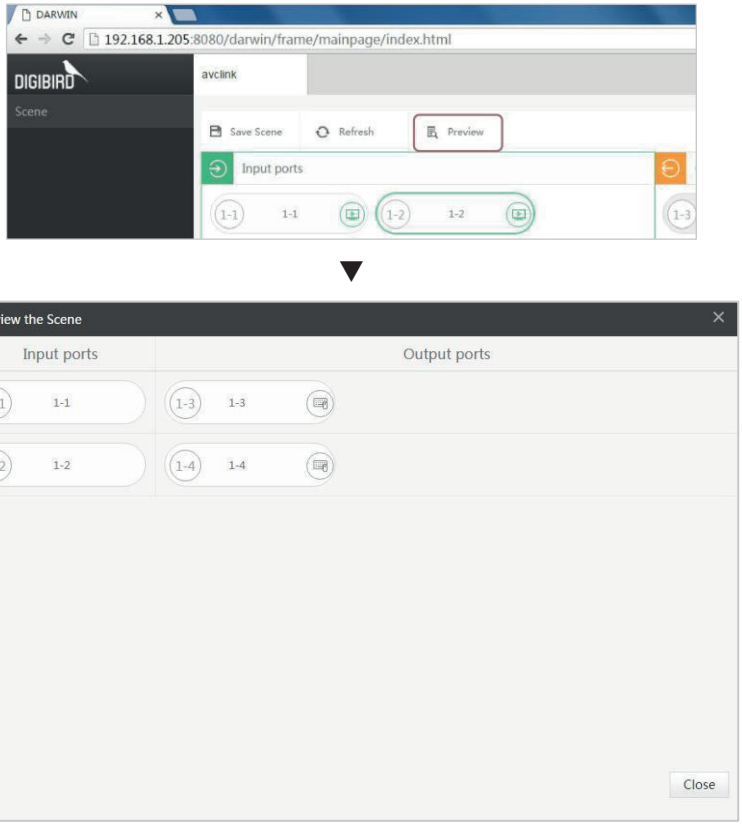


Enter OSD: <Ctrl + Shift + Alt + I> Quit OSD: <Ctrl + Esc>

Move Curser: <↑><↓><←><→> Enter/quit function screen: <Enter>/<Esc>

Preview of current status

Click **[Preview]** button to enter the preview interface. You can check the current switching and KVM status.

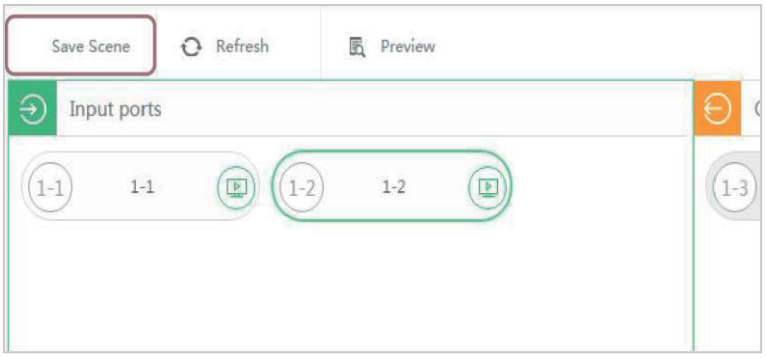


Scene

You can configure some frequently-used switching relationships and save them as scenes that you want to enable only by on-click operation.

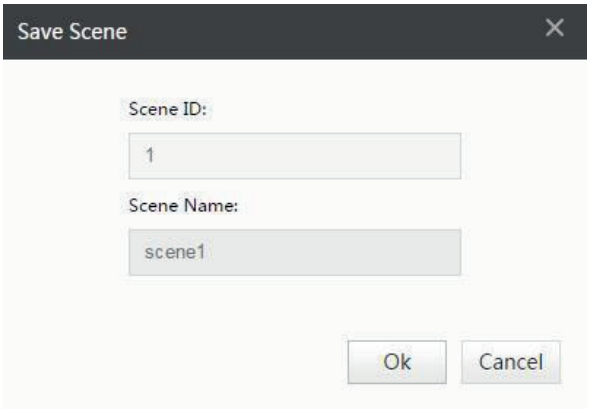
Save

- Click **[Save Scene]** button.



- Input Scene ID and Scene Name in the **[Save Scene]** window, then click **[OK]** button to confirm.

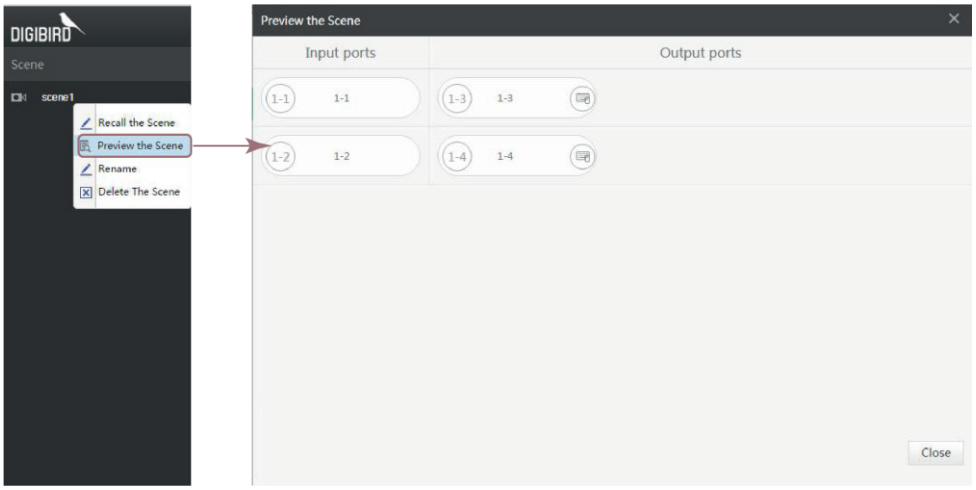
  If you want to save the current configuration and cover that already saved, just need to set the same Scene ID.



Preview

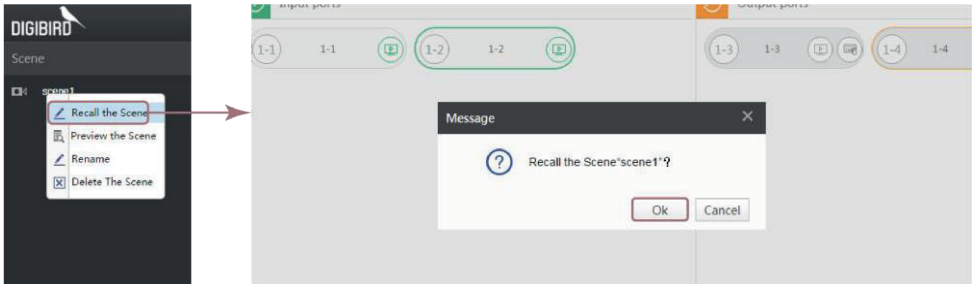
You can preview the scene before recalling it to avoid misoperation.

Right click the scene > choose **[Preview the Scene]**.



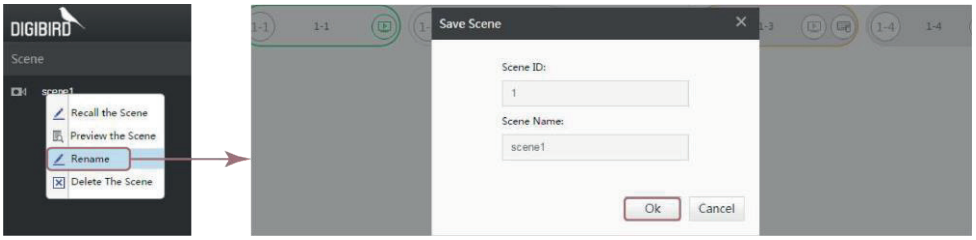
Recall

Right click the scene > choose **[Recall the Scene]** > click **[OK]** button to recall.



Rename

Right click the scene > choose **[Rename]** > input the Scene Name > click **[OK]** button to rename.



Delete

Right click the scene > choose **[Delete the Scene]** > click **[OK]** button to delete.

Port Configuration

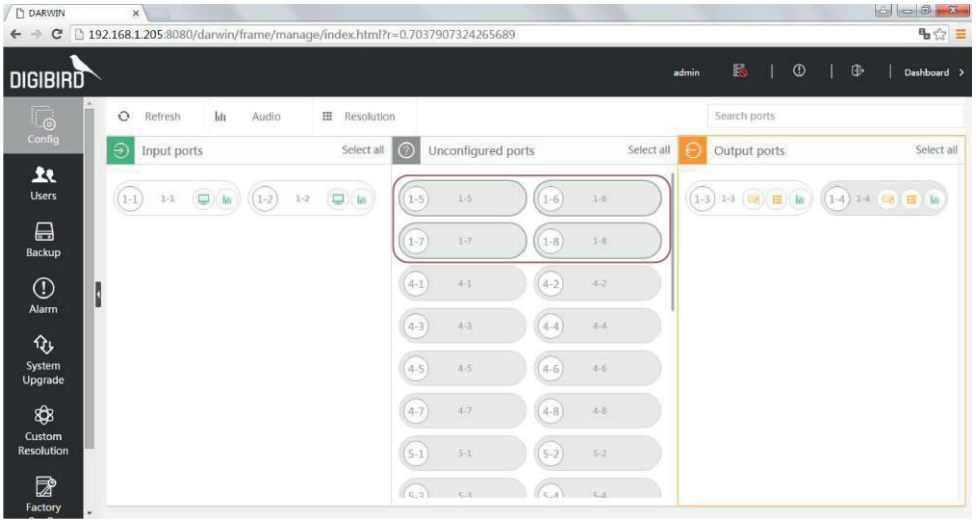
Enter the settings to configure the property, audio mode, name and resolution of input and output ports.

Configure ports

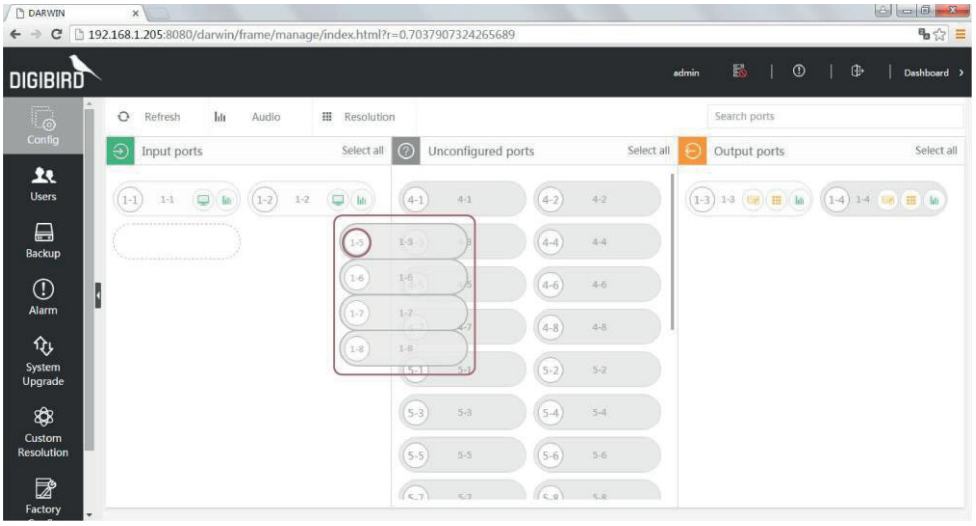
The matrix supports mixed I/O ports (except the 26U model), which can be defined to be input or output automatically according connection with TX (input) or RX (output).

For example: set some unconfigured ports to be input ports:

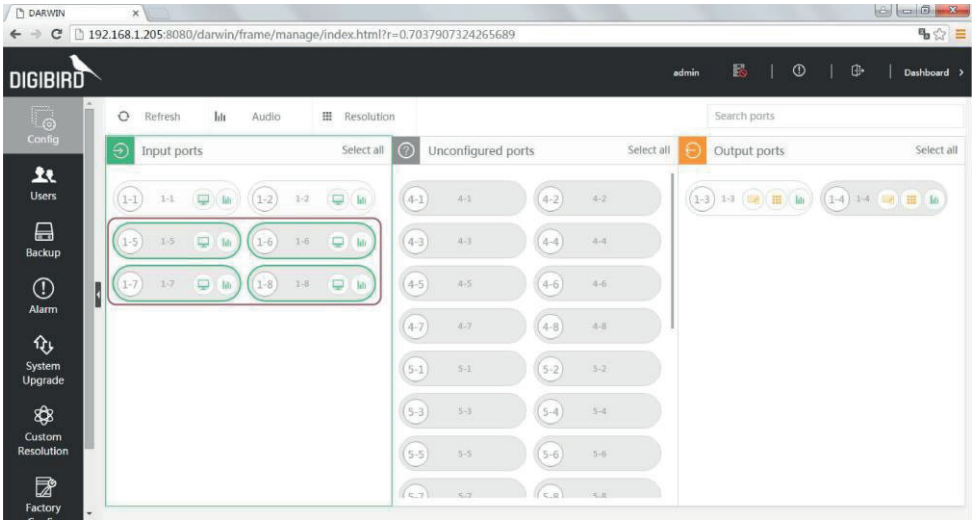
- Select one or more unconfigured ports.



- Click the circle and drag to the left area.



- The selected ports will be assigned as input. (The input ports should be connected to TX later.)

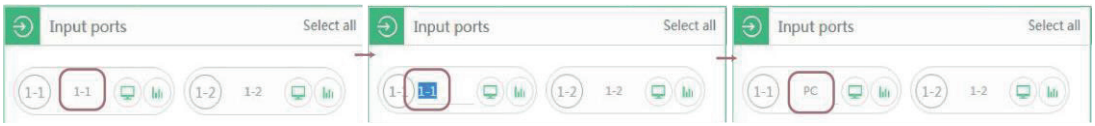


The 26U model does NOT support mixed I/O ports, the **[Unconfigured Port**] is not applicable and it will show fixed input and output lists.

You can drag the pre-configured ports back to [Unconfigured ports] area, but the ports that have connected to the TX/RX can NOT be moved.

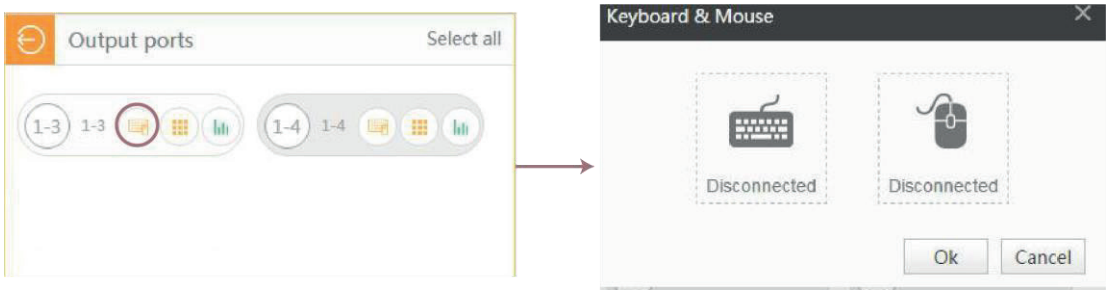
Rename the Port

Select a port > double-click in the middle area > input the name > click on the blank area or press **<ENTER>** key to save.



KVM status

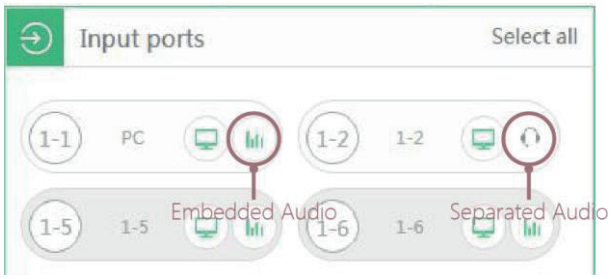
Click button of a port, then you will see the KM connection status.



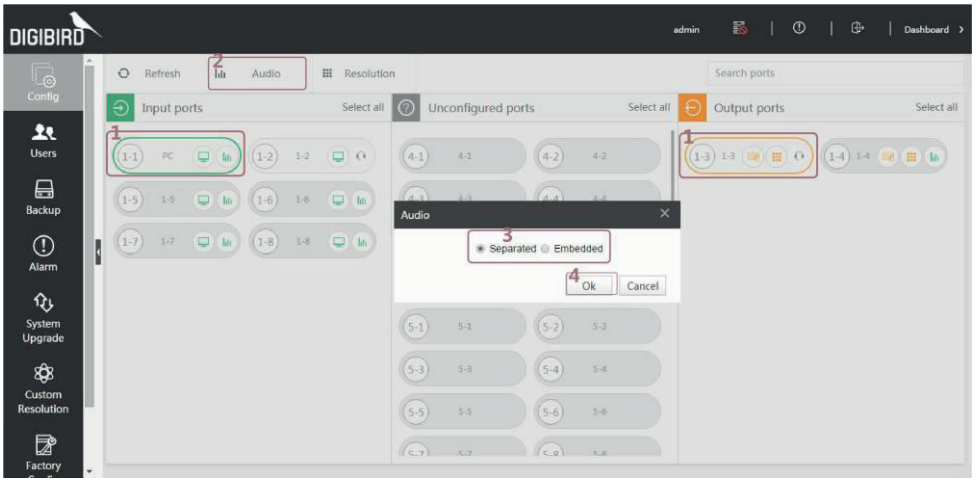
Audio configuration

The RX/Tx support audio channel. You can select embedded or separated audio channel for HDMI or SDI version:

The  icon means embedded audio, and the  means separated audio.



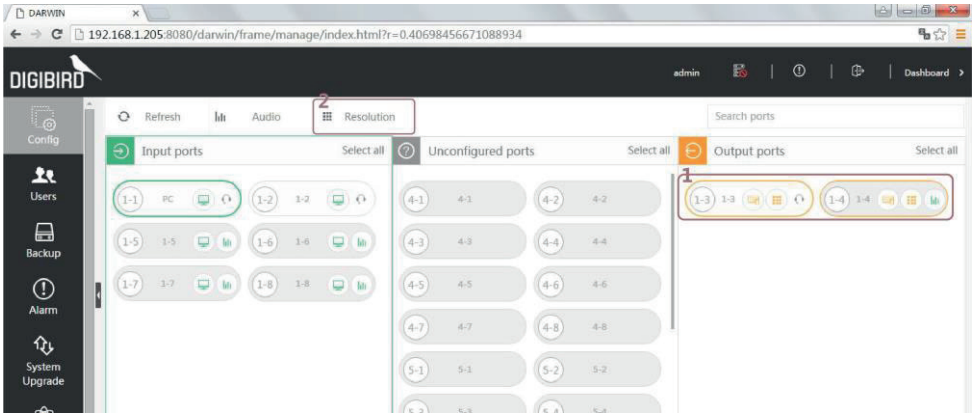
If you want to set multiple ports at once, you can select more ports > click  button > select the audio mode in the pop-up window > click **[OK]** to confirm the operation.



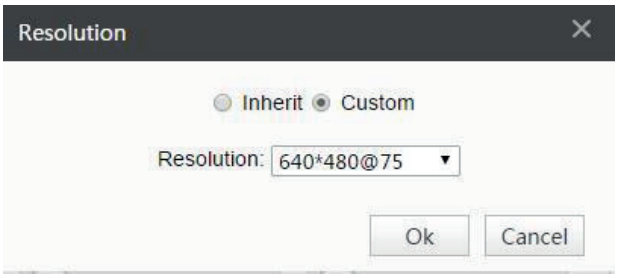
Resolution

Set the Resolution

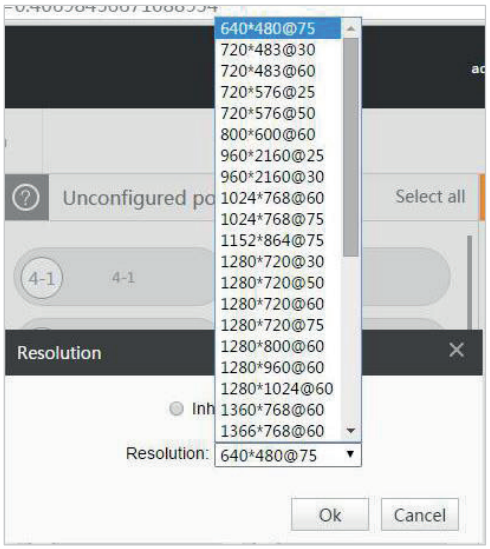
- Select the output ports that you want to change the resolution > click  button > to select resolution.



- The system support two resolution modes: Inherit and Custom. Inherit means the output resolution will be the same with that of input. Custom means to set a firmed or customized output resolution no matter how the input resolution is.



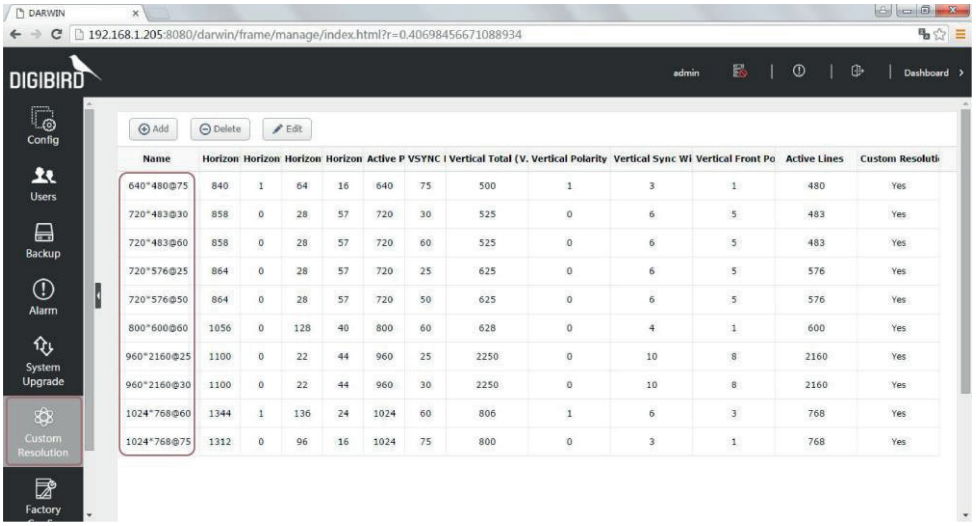
- If you select the Custom option, you can choose a resolution in the drop down list. You can add a resolution if cannot find in this list. See Custom Resolution for details.



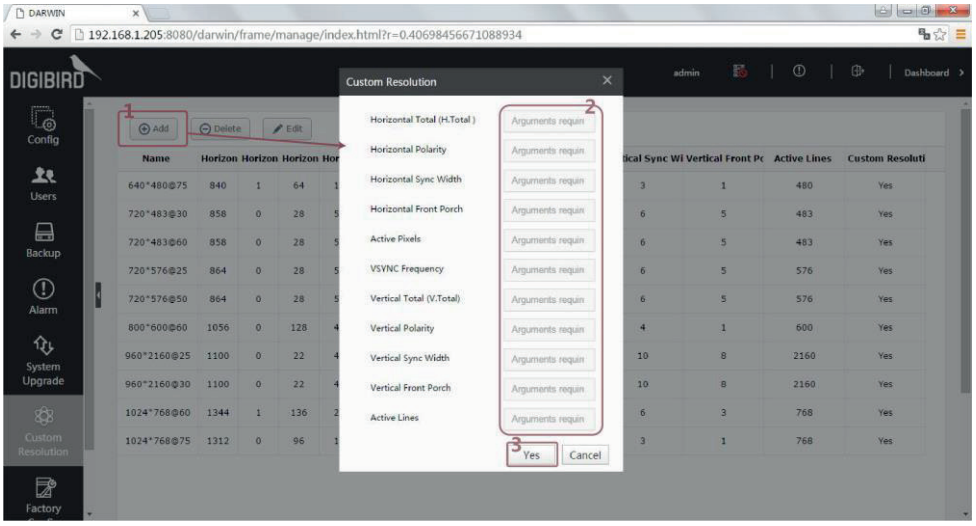
Custom resolution

To add a custom resolution.

- Click the **[Custom Resolution]** button, then you will see the built-in resolutions list.



- Click **[add]** button > fill in data in the pop-up window > click **[OK]** button to save.



You can modify or delete the resolutions that you added, but can NOT change the built-in resolution.

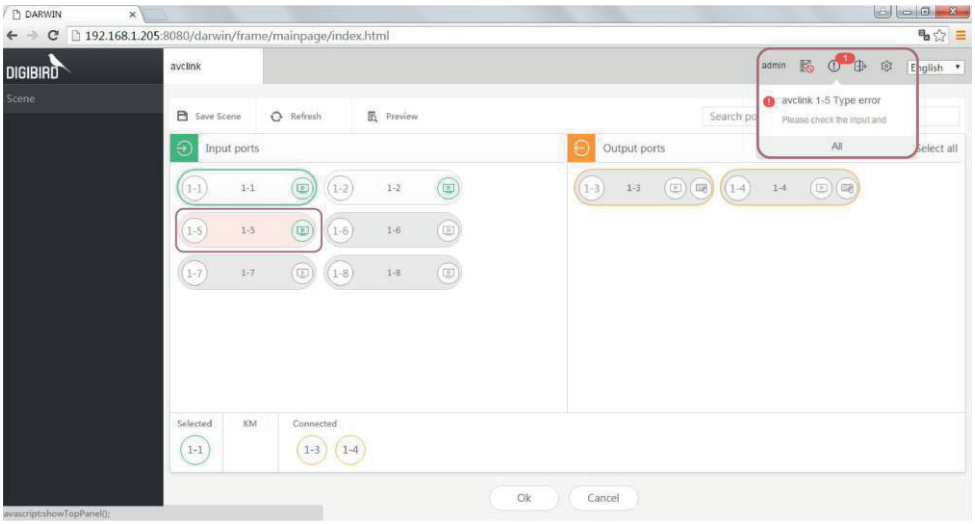
Alarm

The system will provide alarm in abnormal situation for trouble-shooting.

For example, if the I/O port connected to the wrong TX/RX, the software will alarm you and guide how to solve the problem.

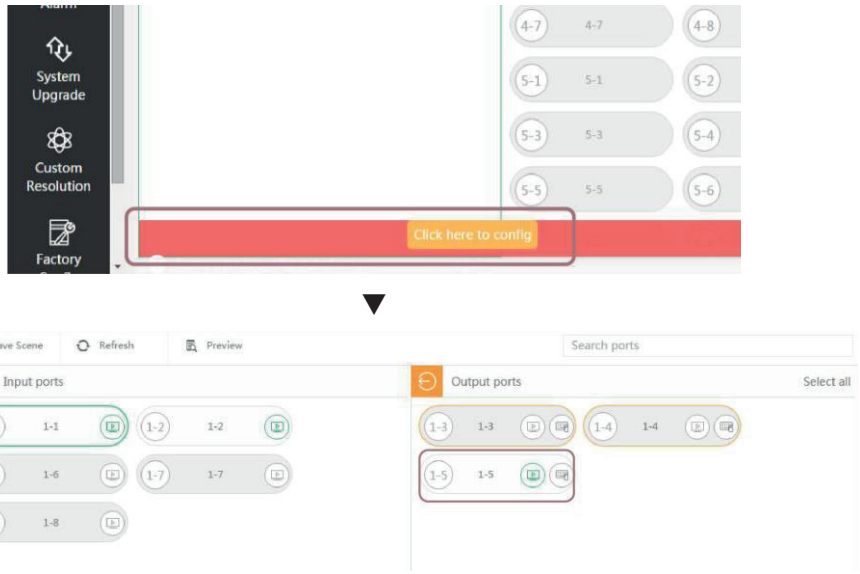
1、The alarm in dashboard

The wrong connected port will be highlighted with pink and it shows the detail information in the toolbar.



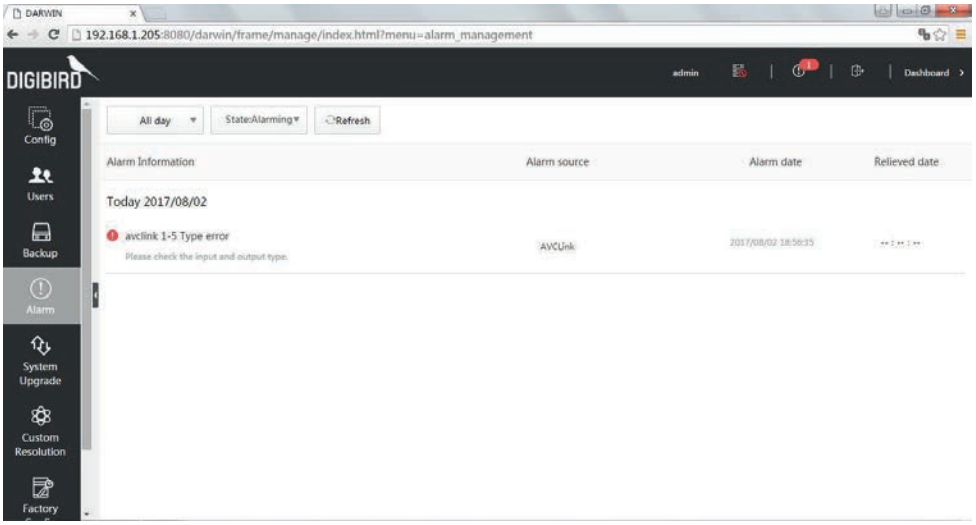
2、The alarm in settings

There will be an alarm message at the bottom, on which you can click the **[Click here to config]** button to solve the problem. The system will correct the properties of the port according to TX/RX info.



3、Alarm log

You are able to check or filter the alarm log in the menu of **[Alarm]**.

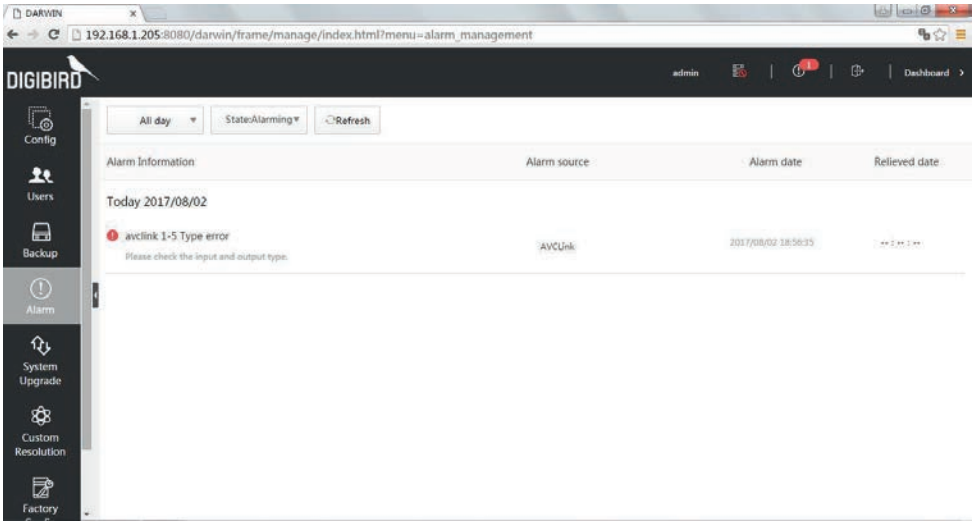


Users

You can add more users and setup different authorities.

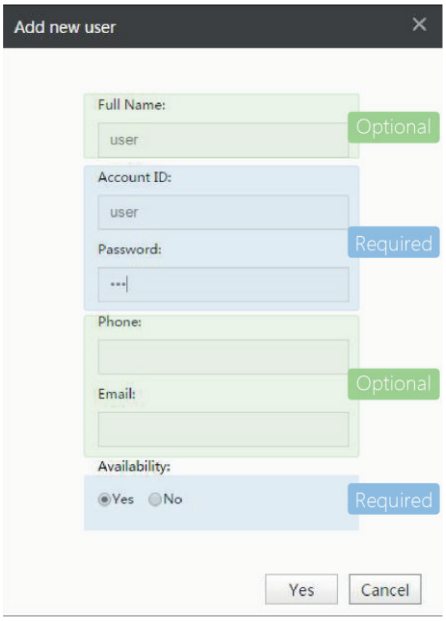
Add a user

- Click **[Users]** in the menu bar.

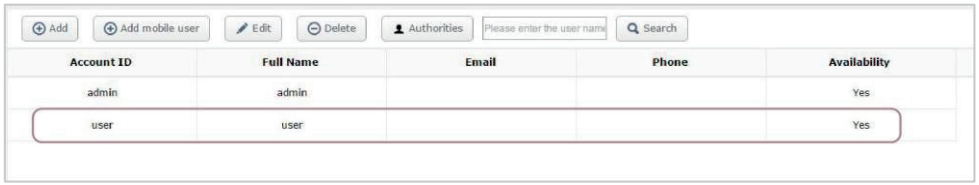


- Click  button to open the **[add new user]** window.

- Fill in the user info > click **[OK]** button to confirm.



- The added user information will be shown in the list.



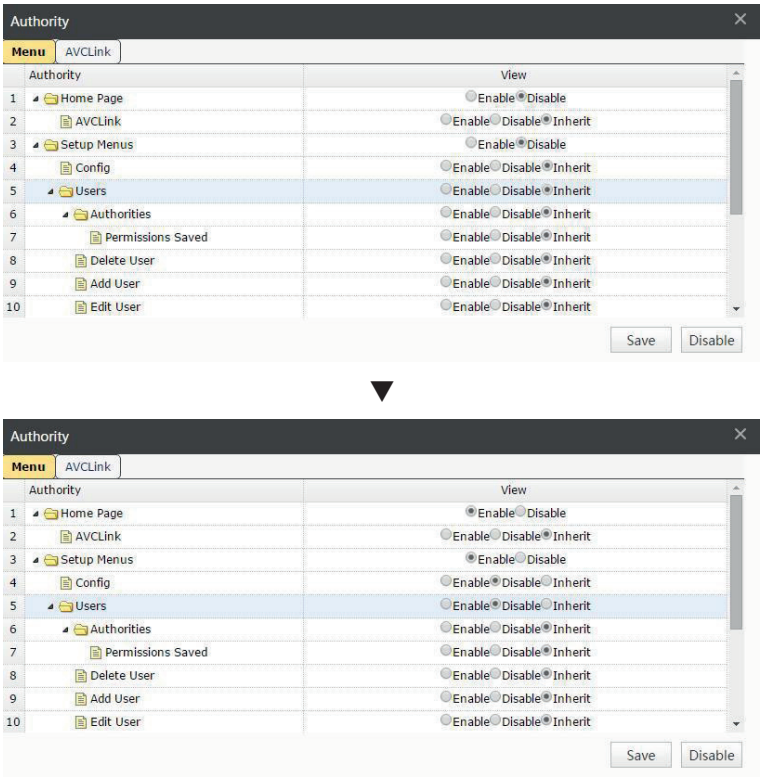
Authorities

You can distribute different authorities for different account.

1. Select one account > click  button to open the **[Authority]** window.

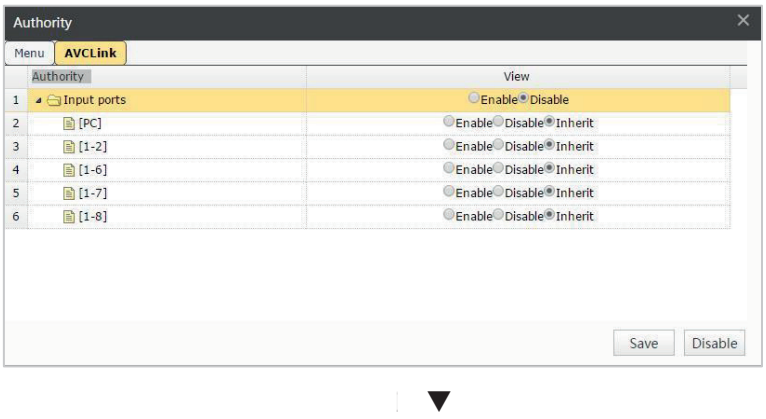
Menu authorities

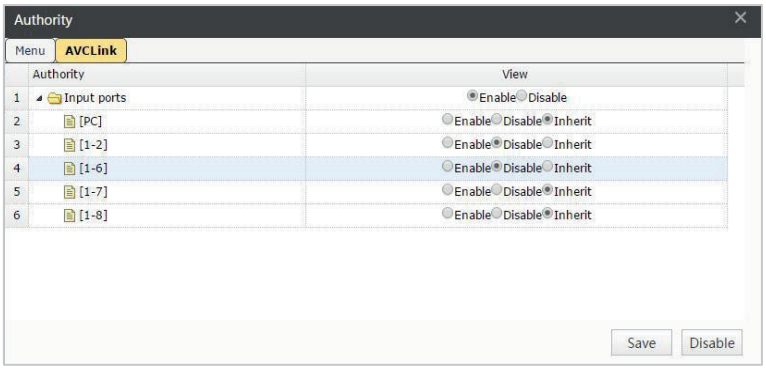
Click **[Menu]** button to set the software operating rights. For example, if you want to prohibit the *Config* and *Users* function for the "user" account, you should operate as follows: Set the **[Home Page]** and **[Setup Menus]** to be **Enable** > Set the **[Config]** and **[Users]** to be **Disable >** Click **[Save]** button to confirm.



Input Source authorities

Click **[AVCLink]** button to set the input source authorities. For example, if you do not want the "user" account to operate the **[1-2]** and **[1-6]** input source, you should operate as follows: Set the **[Input ports]** to be **Enable** > Set the **[1-2]** and **[1-6]** to be **Disable >** Click **[Save]** button to confirm.

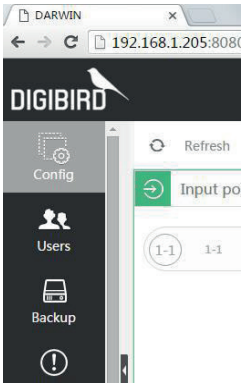




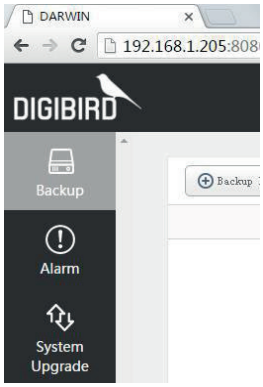
The explanation of three levels are as follows:

Enable	The user will be permitted to user have this authority.
Disable	The user will be NOT permitted to have this authority.
Inherit	The permission will be decided by the status of the upper level or menu. For example, the status of [Users] is **Inherit**, so it will be **Enable** when the **[Setup Menu]** is **Enable**, and will be **Disable** when the **[Setup Menu]** is **Disable**.

2. Using the "user" account to login, you will see the differences between "admin" and "user": there is no the **[Users]** option in the menu bar on the dashboard, and the user can't operate the **[1-2]** and **[1-6]** resources.

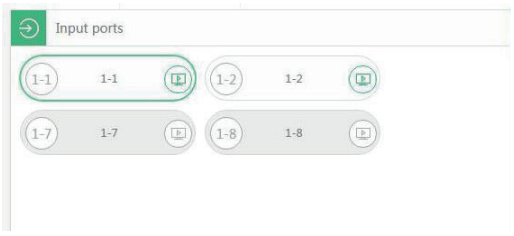


The menu bar of "admin"



The menu bar of "user"

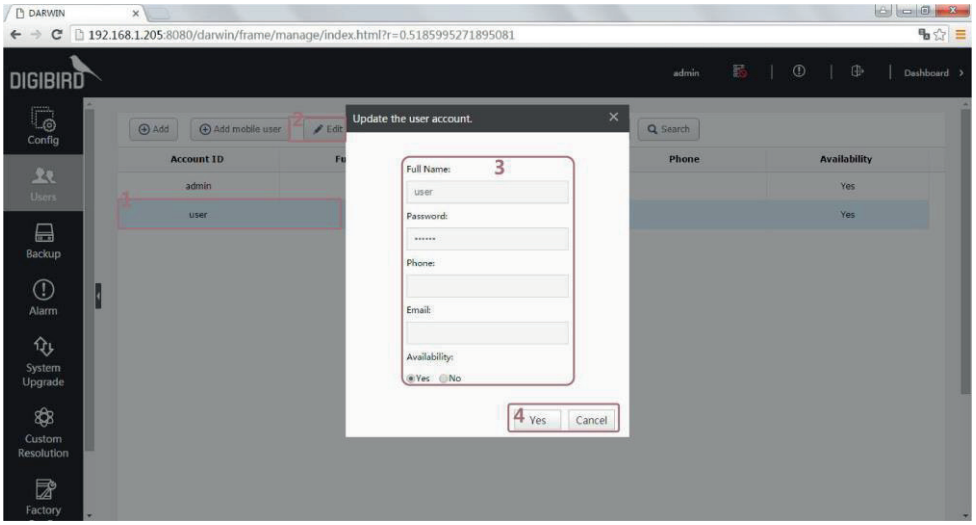
The **[input ports]** area of "admin"



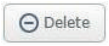
The **[input ports]** area of "user"

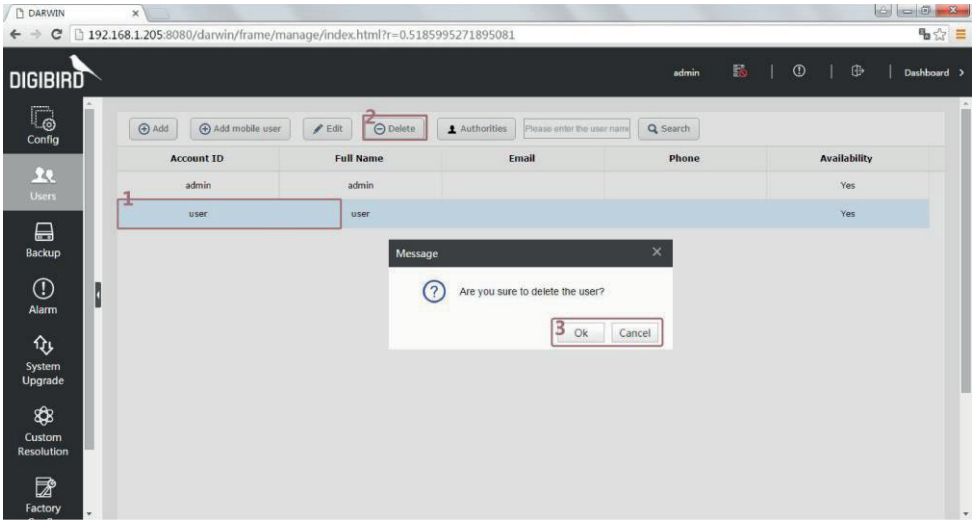
Edit

- Choose an account.
- Click  button.
- Fill in the new information in the pop-up window.
- Click **[OK]** button to confirm.



Delete

- Choose an account.
- Click  button.
- Click **[OK]** button in the pop-up window to confirm.

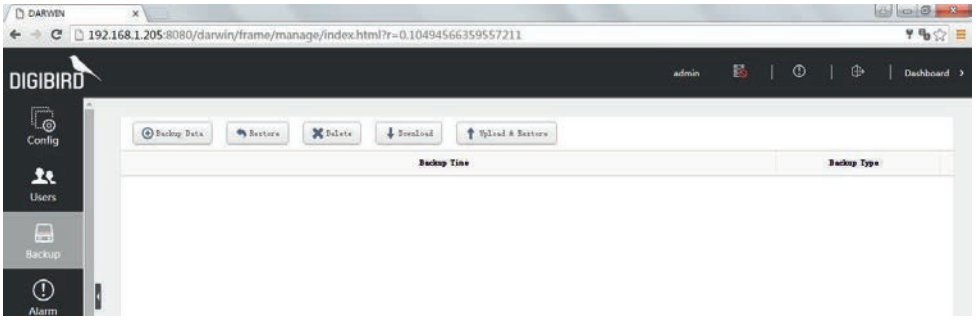


Backup and Restore

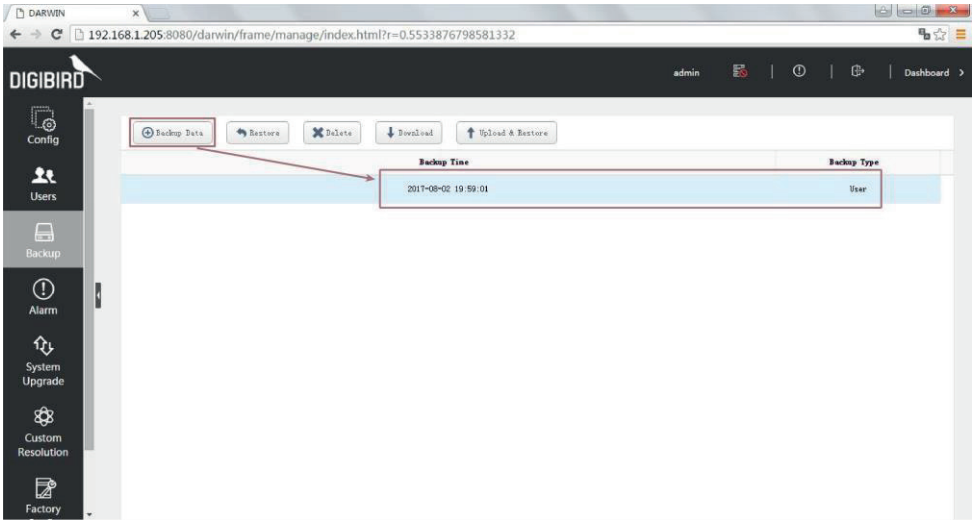
You can save the system configuration as backup file to the Matrix or PC in case of losing the configuration. The backup can be restored at any time.

Backup

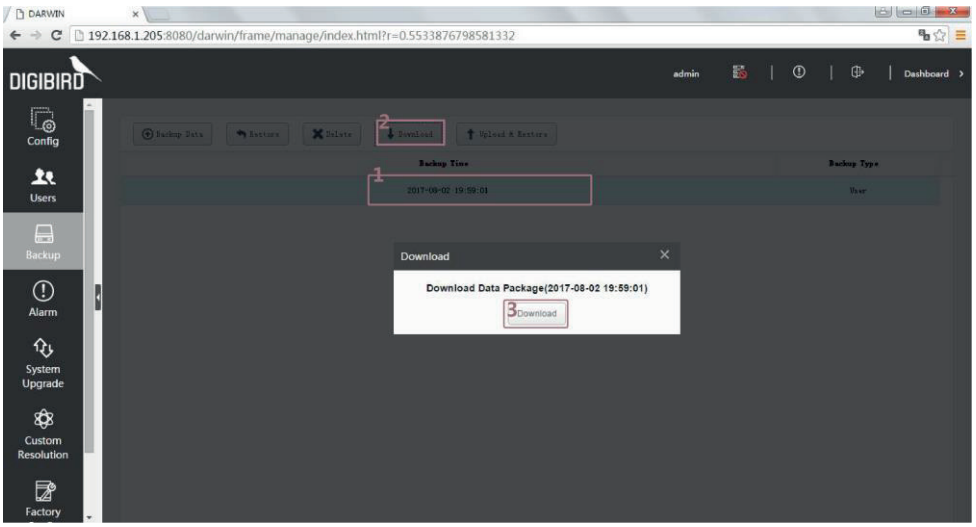
- Click the **[Backup]** button in the menu bar.



- Click  button to backup the hardware and software configuration, and the backup file will be stored in the matrix.



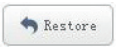
- Select a backup file in the list, then click  button to download it to PC.

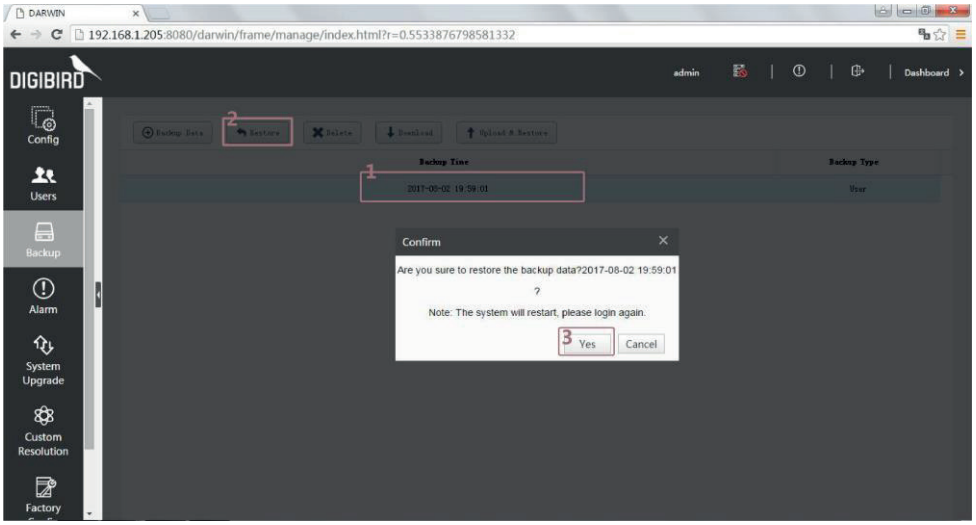


The AVCLink is able to backup data every day automatically and keep for 7 net days one time. The data on the 1st day will be displaced on the 8th day.

Restore

1. Restore the Matrix configurations.

   Select a backup > click  button.

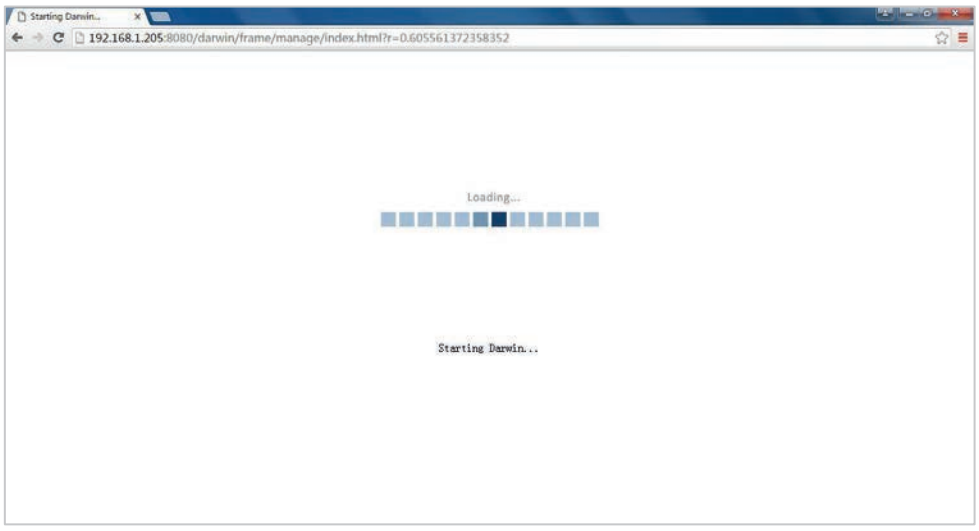


2. Restore the PC configurations.

   Click  button > click **[Please choose a file]** button in the pop-up window > select a file that already stored before > click **[Upload]** button to restore the configuration.

3. The restore process

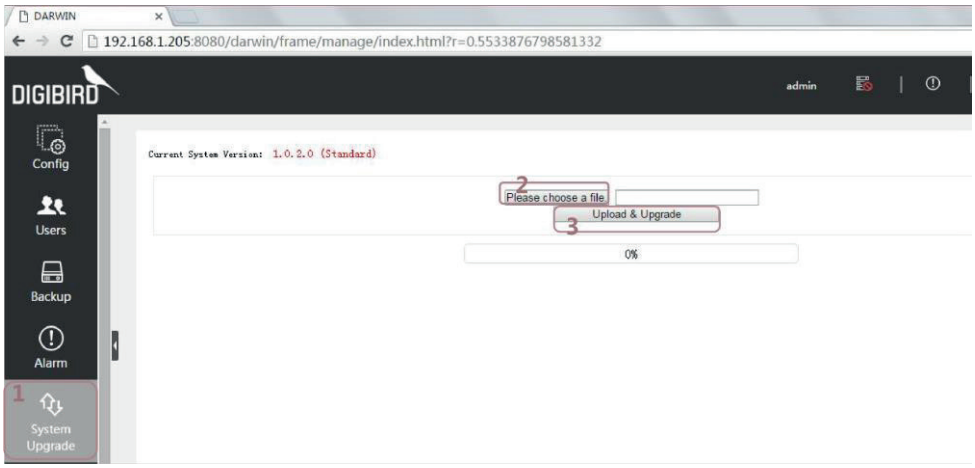
   The screen will display a processing page when the system restoring. It is about 2 minutes to complete.



Upgrade

Select and upload the upgrade file to complete. The user is able to request the latest firmware from your sales or contact our team at sales@digibirdtech.com.

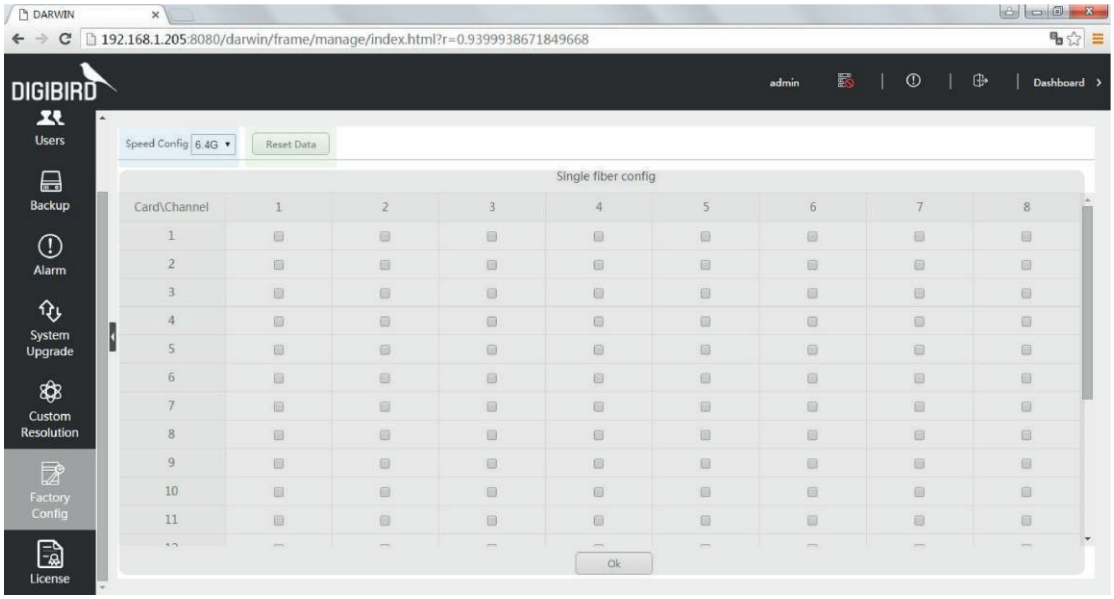
- Enter the settings > click the **[System Upgrade]** button in the menu bar.
- Click **[Please choose a file]** button to add a file.
- Click **[Upload & Upgrade]** button to confirm upgrading.



Do NOT power off when do the upgrading.

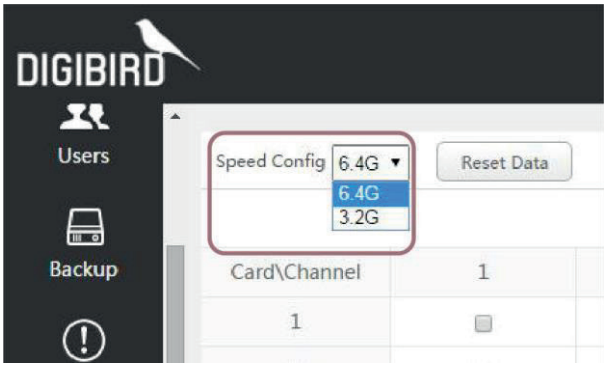
Factory Configuration

You can set the Factory Configuration if need, including Running Rate (Only the 4K device）, Single Fiber Mode (When there is no need of KVM function）,Default configuration (Eliminate all user configurations）.



Running Rate

If your Optic Transfer Unit support 4K, you can set the running rate to be 6.4G (Supports 4K) or 3.2G (Supports 1080P).



Single Fiber Mode

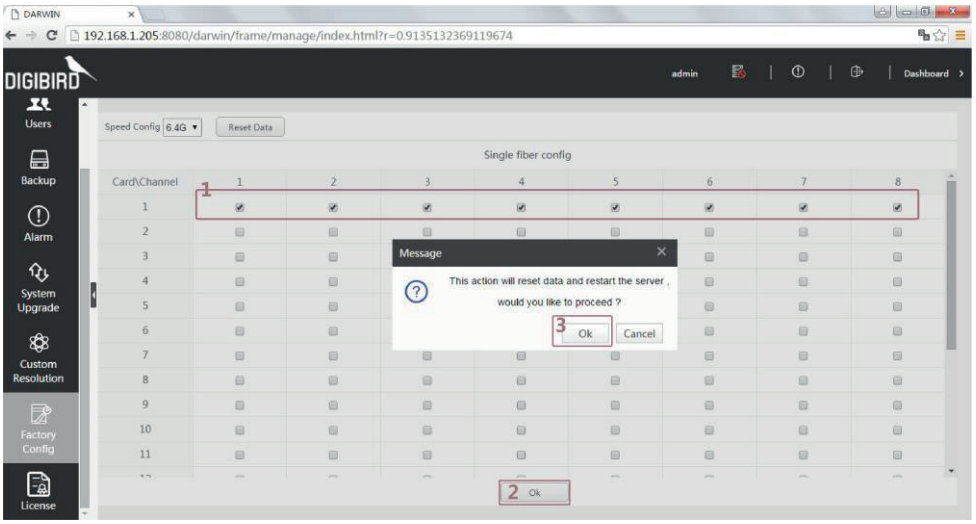
Each I/O card consists of 8x dual optical ports to transmit video and KM (control) signal via 2x pcs single mode fiber cables. If you don't need to use KM feature, you are able to use the dual optical ports to transmit 2x video signals in which one is input and the other is output, hence to make the I/O quantity double.

Operation as follows:

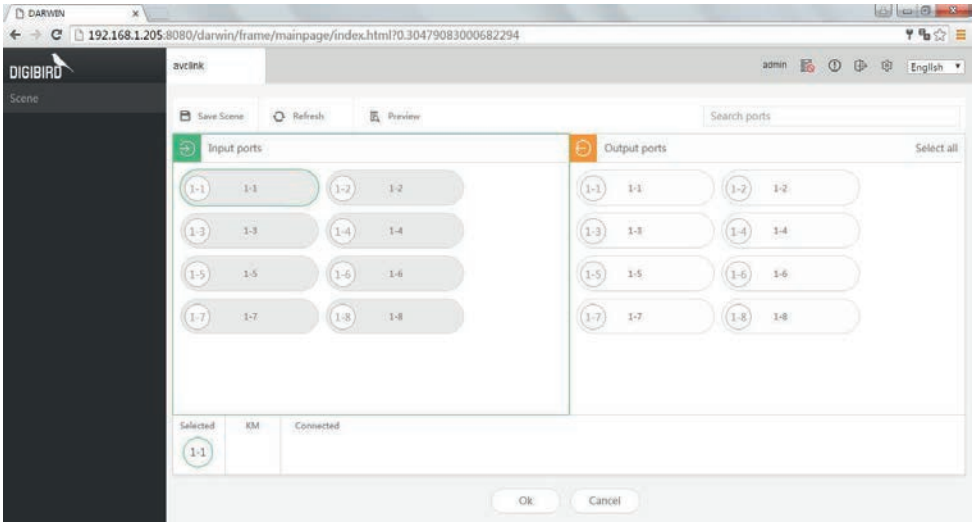
1、Select the ports which you want to change to be single mode;

2、Click [OK] button at the bottom of the page.

3、Click [OK] button in the pop-up window to confirm. The system will restart and eliminate all the configurations you set before.



4、After the system restart, you can see the configured single ports with single mode in the **[Input Ports]** and **[Output Ports]** list.

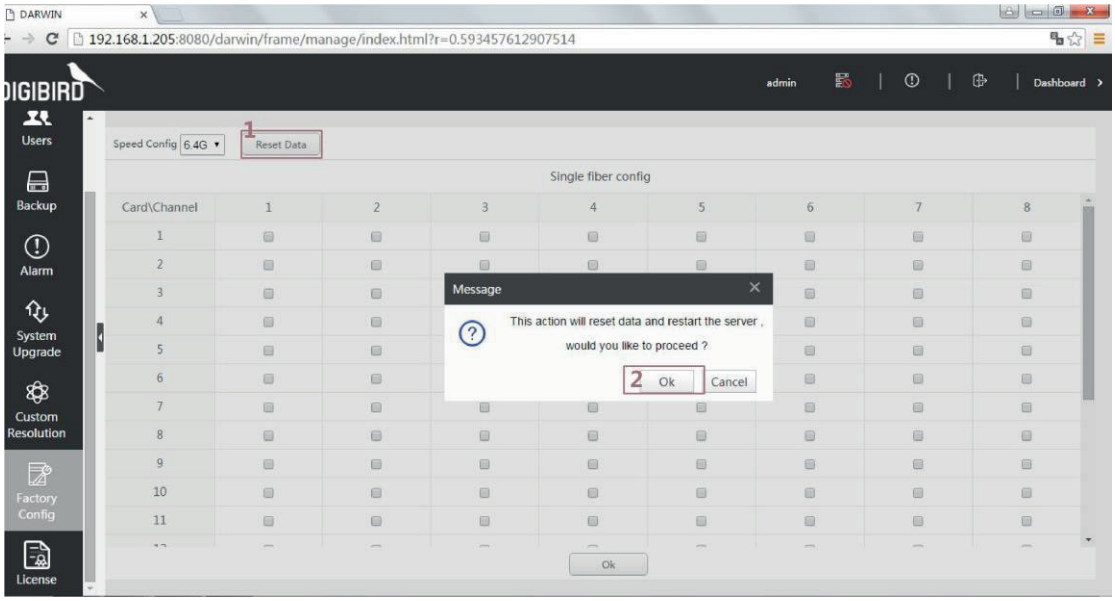


Factory config

You can reset the factory settings:

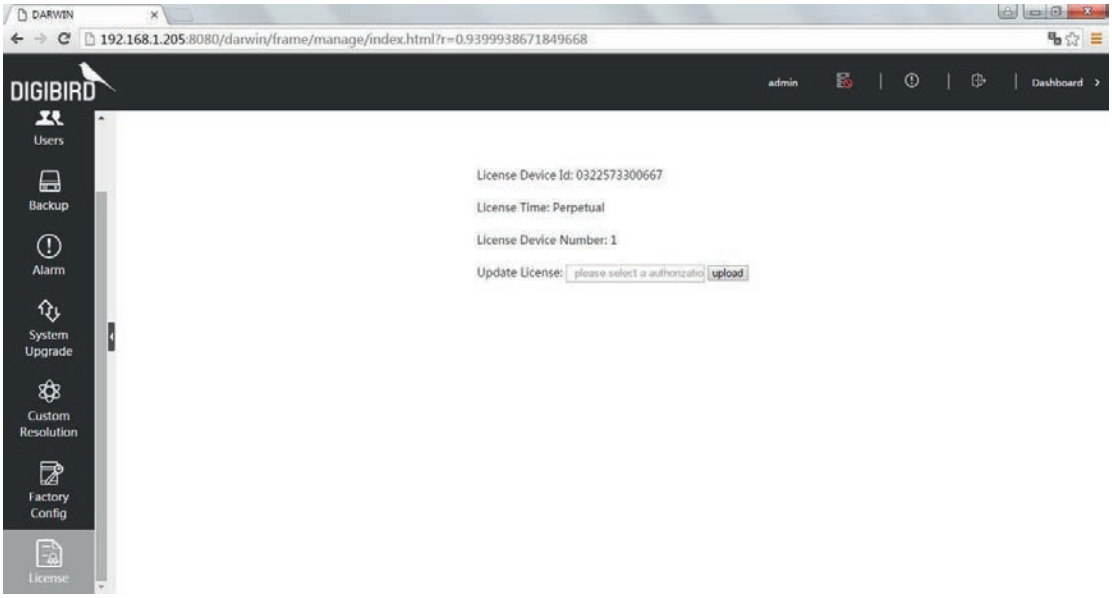
1、Click **[Reset Data]** button in the **[Factory Config]** page.

2、Click the **[OK]** button in the pop-up window to confirm.



License

For renew your license, please contact your sales or contact our team sales@digibirdtech.com.



Appendix

Glossary

The following terms are commonly used in this manual or in video and KVM technology.

Term	Explanation
Optic Transfer Unit	Means the transmitter (TX) and receiver (RX) to connect with the matrix input and output.
Fiber Cable	Single-mode or multi-mode fiber cables.
RX	The Receiver connected to the monitor, keyboard, mouse and Matrix.
TX	The Transmitter connected to the source (video, audio and USB) and Matrix.
KVM	Keyboard, Video and Mouse.
OSD	The On-Screen-Display control method to operate the device.
DisplayPort	A VESA standardized interface for an all-digital transmission of audio and video data. It is differentiated between the DisplayPort standards 1.1 and 1.2. The signals have LVDS level.
DVI	Digital video standard, introduced by the Digital Display Working Group. Single Link and Dual Link standard are distinguished. The signals have TMDS level.
HDMI	An interface for an all-digital transmission of audio and video data. It is differentiated between the HDMI standards 1.0 to 1.4a. The signals have TMDS level.
RCA (Cinch)	A non-standard plug connection for transmission of electrical audio and video signals, especially with coaxial cables.
VGA	Video Graphics Array (VGA) is a computer graphics standard with a typical resolution of 640 x 480 pixels and up to 262,144 colors. It can be seen as a follower of the graphics standards MDA, CGA and EGA.

DigiBird Technology Co., Ltd.

Web: www.digibirdtech.com

Email: sales@digibirdtech.com