VENUE VIZION
DISTRIBUTION
&CONTROL
BY CONTEMPORARY RESEARCH

Installation Guide

Overview

Shipped in the Venue Vizion Package:

- Four two-channel QMOD Encoder-Modulators

  Each unit can accept up to 2 inputs, providing up to 8 channels in the system.

- One ICE-HE-DXL Display Control Center

  Injects the RF control channel into the RF system and hosts the DX Lite web page.

- One QCA9-33 Active Combiner

  Combines and amplifies up to eight QMODs and one iCC-Net control channel into one RF feed.

- Pre-installed coax interconnects and power supplies

- 20 ICC1-IRX and/or ICC1-232 TV Controllers with control cables

The QMODs, ICE-HE-DXL, QCA9-33, and power supply/accessory shelf are mounted together in a 4RU rack kit.

Check the packing list to identify the specific components and cables included in the shipment.

Simplified Integration Process

Venue Vizion arrives pre-racked, pre-wired, pre-set, pre-configured, and ready to install. This enables the system to be fully tested prior to the final rack installation.

Installation consists of 6 easy steps:

1. Unpack and test the Venue Vizion system.

2. Connect the RF output of the system to your RF distribution system.

3. Integrate the TV controllers to TVs and connect to the RF distribution system.

4. Link the ICE-HE-DXL to a wired or wireless Ethernet network to view the DX Lite control pages.

5. Define TVs, Groups, and Channels in DX Lite software.

6. Install rack equipment and integrate sources.

Testing the System
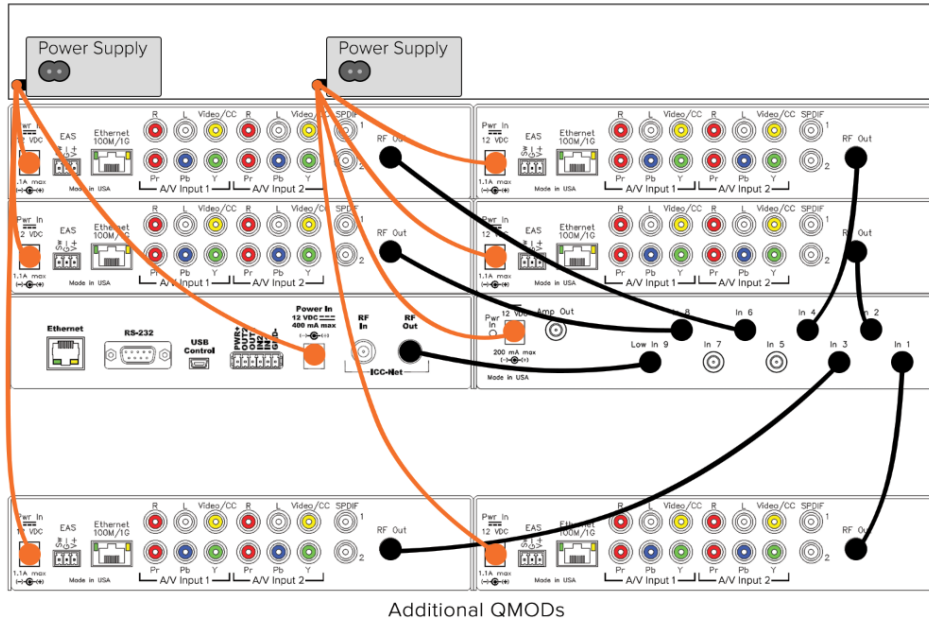
Additional QMODs

Preparation

- Remove the 4RU rack from the shipping box.
- The rack is pre-wired for RF and power supplies.
- Turn the racked units around to face the back.
- If you ordered additional QMODs, those can be connected to the open input ports on the QCA9-33.

Testing

- The QMODs are factory preset to channels 2-1 through 9-1.
- Additional QMODs in the same order can be preset to channels 10-1 and beyond by request (*at time of order*).
- Connect AC power to the two power supplies in the top rack.
- Make sure the DC cables are still connected to the components.
- Connect an RF coax cable from the QCA9-33 RF Out to a nearby TV. (*Some TVs are not able to operate with a 32 dBmV RF level, so they may require a 20 dB attenuator.*)
- Perform a channel scan on the TV.
- Although no video is supplied to the QMODs, there will be a color background on each channel.

Distribution

Connect the **RF Out** on the QCA9-33 to the RF distribution system. Even before video sources have been connected and before the ICE-HE-DXL has been connected to an Ethernet network, the TVs and controllers can be tested as they are being hooked up.

- When the ICC1-IRX or ICC1-232 controller is connected to the RF network, the NET light will blink once per second, confirming that it is receiving the control "heartbeat" signal from the ICE-HE-DXL.
- Once the TV and controller are installed, perform a channel scan to verify that the TV can tune all the channels.

TV Controller Installation

The TV Controllers received with the Venue Vizion system are pre-addressed as TVs 1-20. The addresses match the TVs pre-defined in the DX Lite web page. Up to 128 TVs can be defined in a Venue Vizion system using DX Lite. Before installing the controllers, document which TV the controller will be connected to and its location. This will help identify the TVs when you customize the DX Lite database.

In the form below, the Address is the network address for each controller. In DX Lite, the address is the TV number, plus 256. Columns to the right of the address refer to the first of two DIP switches on the back of each controller. While the controllers are pre-set, you will need to understand how to set the switches if you add more controllers. You can also download the Venue Vizion Worksheet spreadsheet to simplify documentation.

TV	Name	Location	TV #	Zone #	Address	\multicolumn{8}{c}{Switch 1 - TVs}	\multicolumn{4}{c}{Switch 2 - Zones}
						1	2	3	4	5	6	7	8	1	2	3	4
						1	2	4	8	16	32	64	128	256	512	1024	2048
1	TV1		1	1	257	1	0	0	0	0	0	0	0	1	0	0	0
2	TV2		2	1	258	0	1	0	0	0	0	0	0	1	0	0	0
3	TV3		3	1	259	1	1	0	0	0	0	0	0	1	0	0	0
4	TV4		4	1	260	0	0	1	0	0	0	0	0	1	0	0	0
5	TV5		5	1	261	1	0	1	0	0	0	0	0	1	0	0	0
6	TV6		6	1	262	0	1	1	0	0	0	0	0	1	0	0	0
7	TV7		7	1	263	1	1	1	0	0	0	0	0	1	0	0	0
8	TV8		8	1	264	0	0	0	1	0	0	0	0	1	0	0	0
9	TV9		9	1	265	1	0	0	1	0	0	0	0	1	0	0	0
10	TV10		10	1	266	0	1	0	1	0	0	0	0	1	0	0	0
11	TV11		11	1	267	1	1	0	1	0	0	0	0	1	0	0	0
12	TV12		12	1	268	0	0	1	1	0	0	0	0	1	0	0	0
13	TV13		13	1	269	1	0	1	1	0	0	0	0	1	0	0	0
14	TV14		14	1	270	0	1	1	1	0	0	0	0	1	0	0	0
15	TV15		15	1	271	1	1	1	1	0	0	0	0	1	0	0	0
16	TV16		16	1	272	0	0	0	0	1	0	0	0	1	0	0	0
17	TV17		17	1	273	1	0	0	0	1	0	0	0	1	0	0	0
18	TV18		18	1	274	0	1	0	0	1	0	0	0	1	0	0	0
19	TV19		19	1	275	1	1	0	0	1	0	0	0	1	0	0	0
20	TV20		20	1	276	0	0	1	0	1	0	0	0	1	0	0	0

ON – S1

1	2	4	8	16	32	64	128
1	2	3	4	5	6	7	8

ON – S2

256 512 1024 2048

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
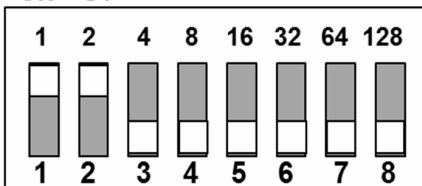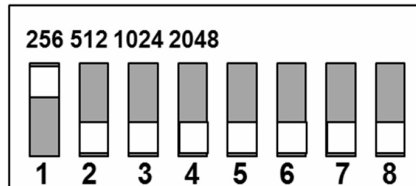
TV Controller DIP Switches On the back of the ICC1-232 or ICC1-IRX TV controllers, you will see two sets of switches side-by-side. Turn the controller so that they are at the bottom.

The switches on the left, S1, set the TV number, and the switches on the right, S2, set the Zone. The Up wswitch position is "On" and the Down position is "Off". This corresponds to the 1 (On) and 0 (Off) values in the spreadsheet. For the Venue Vizion system, all TVs need to be set to Zone 1, 256. Dip switches 2-8 are used for other applications.

Example:

To set TV 3 in the spreadsheet

- S1 - Flip dip switches 1 and 2 up (On). Dip switches 3-8 remain down (Off).

- S2 - Flip dip switch 1 up (On), numbers 2-4 remain down (Off) to set the controller to Zone 1.

- This sets TV3 to address 259 (adding 3 on the first set of switches to 256 on the second set).

TV Integration
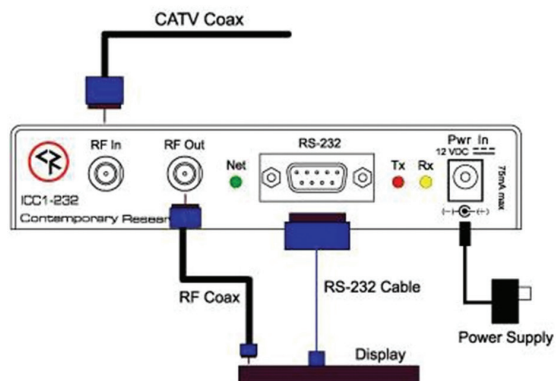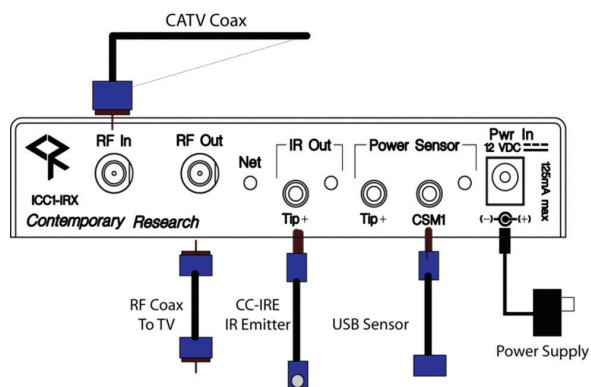
Setup

- Connect the RF coax feed to RF In.

- **ICC1-IRX**

  - o Connect IR Emitter cable to IR Out

  - o If the TV does not have discrete power on/off commands, there is an optional USB sensor cable that connects from the CSM1 sensor input to the TV's USB port. If arranged for at the time of order, the controllers will be set up to use power sensing.

- **ICC1-232**

  - o Connect included RS-232 cable to the TV's control input. Depending on the TV, this will be a DB9 connector or a 3.5mm jack.

- Connect the included short RF cable from the ICC1 RF Out to the TV's RF input.

- Connect the 500 mA DC power supply to the ICC1 power input.

- Mount to the TV using the supplied Velcro strips.

Testing

The following assumes the system is powered On and connected to RF distribution.

- At this point, the NET light on the TV controller will blink once per second. If the LED stays on, it is not receiving the "heartbeat" signal from the ICE-HE DXL. Check connections at the RF head end.

- Turn the TV on and scan for digital cable channels – all 8 channels should be present.

ICE-HE-DXL Setup

Basic Network Setup

- Connect the Display Control Center to the network.

- Press the red **SETUP** button.

- Press the **Down** arrow until "Network" is displayed then press the white **SELECT** button.

- Use the **Down** arrow to view "IP Mode".

- Use the **Left** or **Right** arrow to show "DHCP" then press the **SELECT** button to save the setting.

- To create a static IP address, choose "Static" mode and manually set an IP address. The unit will use the gateway settings it captured in "DHCP".

- Press **SETUP** then **SELECT** to show the IP Address.

- A PC's Ethernet port may be directly connected to the ICE-HE-DXL's Ethernet port. A cross-over cable is not required.
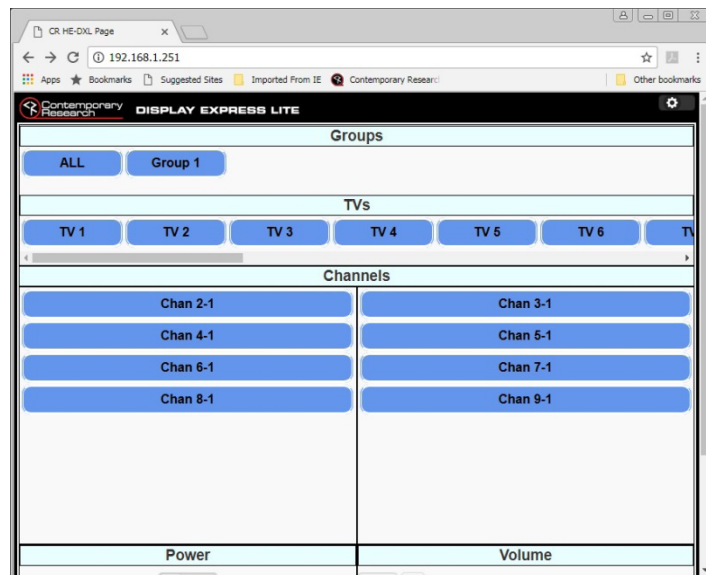
- Enter the IP Address of the ICE-HE-DXL into the top entry bar on your browser.

- The DX Lite home page will appear on your screen.

- If the ICE-HE-DXL is connected to a network with Wi-Fi access, the unit may also be accessed from the browser on a tablet or smart phone.

Display Express Lite
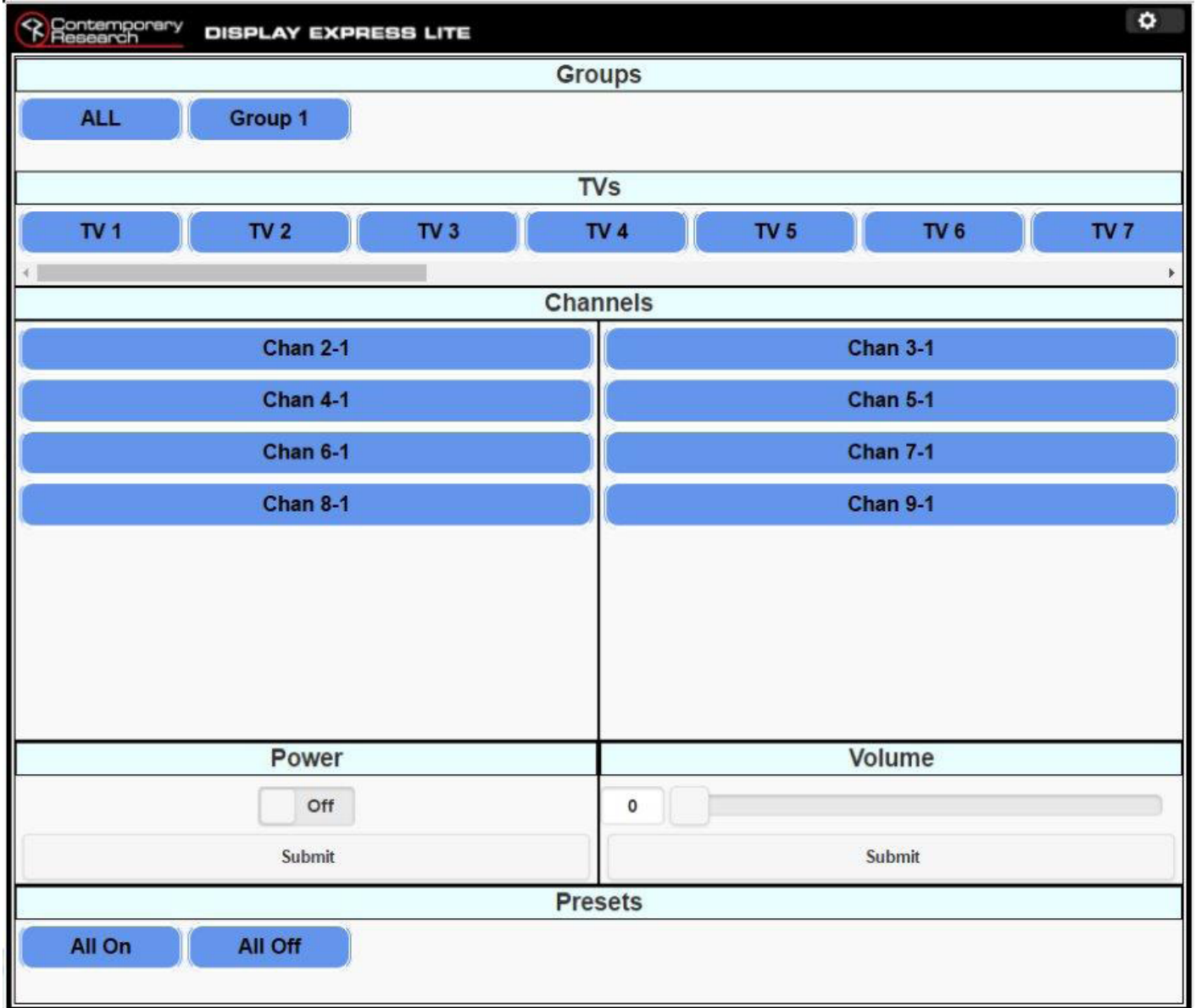
The Display Express Lite web page in the ICE-HE-DXL Display Control Center is a compact version of full Display Express software that runs on a PC. The Lite version is simplified, allowing channel selection for individual or groups of TVs, and power and volume control for individual or groups of TVs. Selections for global "All On" or "All Off" is also available in Display Express Lite.

The page will scale to fit your screen, whether on a smartphone, tablet, or PC.

Programming Display Express Lite

The first 20 TVs and 8 channels have been predefined for ease of installation, but they may be modified.

To customize the settings, click on the settings icon at the top right and select "Toggle Edit Mode" from the pop-up.

The page will change as shown, enabling the user to edit Groups, TVs, and Channels. *(Turn off the edit mode when changes are complete.)*

TVs

Display Express Lite supports up to 128 controlled TVs in the system. When you choose to edit a TV, you can do the following:

- Change the label to your preferred name.

- Assign a Group. Adding a new group number creates a new group.

- Change the address if needed.

Groups

Groups are created with the group number in the TV buttons. The name of the group can be updated here.

Channels

Display Express Lite supports up to 16 channels. Click on a channel button to change the name or the channel number. Refer to the table below for channel number conventions.

Channel Type	Major #	Minor #
2-part digital	<0-135>	<0-256>
1-part digital	<1-9999>	Leave Blank
Analog	<2-135>	0

Front Panel Display

During normal operation, the ICE-HE-DXL displays the above text on the LCD display. The top line shows communication ports as well as network and control status. "Rx" or "Tx" appears briefly under the three external ports (232, USB, IP) to show I/O activity, and a white cursor will blink under the three status options (**N**etwork, **C**ommunication, **E**rror).

- 232 – Active RS-232 port

- USB – Active USB data port

- IP – Active Ethernet port

- N – ICC-Net status, blinking once per second, sending the "heartbeat" command to all TV controllers.

- C – Valid ICC-Net command. The processor evaluates the syntax, and confirms when it is valid.

- E – Error in ICC-Net control frequency. The unit auto-corrects the frequency, so you may see the error status briefly, such as when the unit is powered up. If the status stays constant, contact CR Support for service.

ICE-HE DXL Setup Menus

Press the **SETUP** button to enter the menus. Use the **Up/Down** arrows to move through menus and the **Left/Right** arrows to change settings. Press **SELECT** to store the changes at each step.

- Select a menu group ("System", "Network", "Command") then **SELECT** to view that group's menus.
- Press **SETUP** to move back to other menu groups.
- Pressing the **Left/Right** arrows together will reboot the unit.

System	Factory Defaults are shown in **Bold**.
Baud Rate	2400 | 4800 | 9600 | **19200** | 38400 | 115K *This setting is for rear USB and DB9.*
Pnl Lockout	**None** | Setup *Press setup and right arrow key to temporarily unlock.*
Backlight	Display brightness 1-10 **(9)**
LCD Contrst	Contrast 1-9 **(5)**
RF Level dB	14-45 in 1 dB steps (**29**). Use 29 when combining with QMODs, 14 when connecting to QCA9-33 Low RF Input.
Fact Dfault	**Confirm: N** | Confirm: Y *Restores factory default settings.*
Firmware	Displayed as ICE-HE-DXL<X.YY> *L/R arrows may be used to view boot-loader and board rev.*
Network	
IP Address	**192.168.1.251**
IP Mode	**Static** | DHCP *Note: Changing IP address, gateway, & subnet are not permitted in DHCP Mode.*
Gateway	**0.0.0.0**
Subnet Mask	**255.255.255.0**
IP Port	**23** *Telnet Port*
MAC/SN	**00:14:C8:10:**xx:xx
Command	
Power	All:On | **All:Off**
Volume	**All:Mute** |All:Low | All:Medium
Send IR Type	**Zn:** ALL,**01**-15 **Un:** ALL,**001**-255 **Ty:** 1-99(**21**) *Zone, Unit, Type (IR Type)*
Send 232 Typ	**Zn:** ALL,**01**-15 **Un:** ALL,**001**-255 **Ty:** 1-99(**21**) *Zone, Unit, Type (RS-232 Type)*

Note: In the version of firmware available at this time, the "Send 232 Typ" command is supported only with the ICC2-ATSC 4S Tuner/ Controller. It is not yet functional with the ICC1-232 Controller.

Send IR Type / Send 232 Typ Commands

In the **Command** section of the menu above, **Send IR Type** and **Send 232 Typ** are used to match the controllers to the specific TV models and location on the network. There are three parts to the command, selected by moving the **Left/Right** arrows to each value, then using the **Up/Down** arrows to set a number. Press **SELECT** to store the changes.

The following is a description of those commands.

All ICC-Net controllers have a display ID that is made up of two values: **Zone** and **Unit**. The displays are organized into 16 Zones of 255 displays each. The display number is equal to the Zone number plus the Unit number. For example: Display 258 is Unit 2 (2) of Zone 1 (256).

Zn:	Press the Right arrow to select the Zone, use the Up/Down arrow to select the Zone number.
	Zn = (0-15, or ALL). *ALL TV Controllers will respond to a command sent to Zone ALL.*
Un:	Press the Right arrow again to select a Unit number
	1-255 or ALL (all the controllers in that Zone)
Ty:	For a full list of IR codes, refer to the ICC1-IRX manual. Popular codes include:
	21=LG 44=Vizio
	25=Samsung 45=Panasonic
	43=Sony 46=Sharp
	For a full list of 232 codes, contact Contemporary Research Support. Popular codes include:
	54=LG 47 = Sharp
	11=Samsung 13=Panasonic
Se-lect	Press the white **SELECT** button to send the command
Test	Use the **Power** command menu to test operation

QMOD Setup

Venue Vizion system has been custom packaged with the QMOD types ordered. Each model has a different combination of inputs (HDMI, YPB, RGB, SDI), but the setup process is the same. The QMOD-YPB2 pictured above has two component inputs.

Quick Setup – To set up additional QMODs or reassign channel numbers or inputs

Each QMOD has two encoders, Program A and   Program B. Both programs are included in each channel, and a TV will show both programs in its channel list. For example, R F   Channel 2 will be shown as 2-1 and 3-1 on a TV (using the default setup for Venue Vizion systems).

Press the red **SETUP** button on the first QMOD to view the menu options. The "Quick" menu usually appears first. If not, use the **Up/Down** arrows to scroll to "Quick", then press **SELECT**.

- **Channel** - The first four QMODS are shipped set to Channel 2-1, 3-1, 4-1, 5-1, 6-1, 7-1, 8-1, and 9-1. Press the **Down** arrow to go to the next menu.

- **RF Level** – The factory default is 29 dB. This value may need to be changed depending on the RF network requirements. Press the **Down** arrow to go to the next menu.

- **Program A Video Input** - For the QMOD-YPB2 example shown, this is usually preset to the first HD input, "YPbPr 1".   Keep the setting   or press the **Right** arrow for other inputs. Press **SELECT** and then the **Down** arrow for the next menu.

- **Program A Audio Input** - This is preset to "Analog 1" for the QMOD-YPB2. Use the **Right** arrow to view other options. Press **SELECT** and then the **Down** arrow for the next menu.

- **Program B Video Input** - This is usually preset to the typical second input. Keep the setting or press the **Right** arrow for other inputs or "None" if that input is not used. Press **SELECT** and then the **Down** arrow for the next menu.

- **Program B Audio Input** - This is usually preset to the typical second input. Keep the setting or press the **Right** arrow for other inputs or "None" if that input is not used. Press **SELECT** and then the **Down** arrow for the next menu.

- Press the red **SETUP** button twice to exit the "QUICK" menu.

- At this point, the system is ready to install into an equipment rack for integration with the sources.

Testing

- Use the TV's menus to scan for cable channels.

- The channels from all of the QMODs should now be visible on the TV.

At this point, video should appear on each channel. If no source is connected, only a color background will be shown, but it will confirm that the QMODs are setup properly.

RF Design

A good goal of a properly designed RF system is to deliver about 5-10 dBmV to each TV. In general, most TVs will easily tune a digital QAM channel with a level between -10 and +10 dBmV. Below is an example RF distribution network using readily available RF splitters that will support up to 32 TVs.

Each 4-way splitter has a loss of 7dB on each output. Each 8-way splitter has a loss of 10.5 dB on each output. The loss starts to gradually increase a little more above channel 65 but should not be a factor if the cable runs are less than 150 to 200 feet.

For the example below to work correctly, the RF level of the QMOD devices in the Venue Vizion system will need to be set to 25 dBmV. Refer to the instructions on previous page for modifying the RF level.