

# RGEAR DVB-10HD 5.8GHz COFDM Director's Monitor Operation Manual



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# 1 Document

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## 1.1 Document Revision History

Initial release	January 2018	Rev. A
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## 1.2 Conventions Used in This Manual

**NOTE:** Notes provide supplementary information. They are highlighted for emphasis, as in this example, and are placed immediately after the relevant text.

**CAUTION:** Cautions give information which, if strictly followed, will prevent damage to equipment or other goods. They are boxed for emphasis, as in this example, and are placed immediately preceding the point at which the reader requires them.

**WARNING:** Warnings give information which, if strictly observed, will prevent personal injury or death, or damage to personal property or the environment. They are boxed and shaded for emphasis, as in this example, and are placed immediately preceding the point at which the reader requires them.

## 1.3 ATTENTION!

**FOR ALL MICROWAVE TRANSMITTERS – Operation of a microwave transmitter product could require a license. It is the responsibility of the user to obtain all required operating licenses. Contact RGEAR support for more info.**

**NOTE: ONLY FOR PRODUCTS AWAITING FCC CERTIFICATION – This device has not been authorized as required by the rules of the US Federal Communications Commission. This device is not, and may not be, offered for sale or lease, or sold or leased, in the US until authorization is obtained.**

**CAUTION: Read and Follow Instructions! All safety and operating instructions should be read before this product is operated. All operating and use instructions should be followed. This manual should be retained for future reference.**

# 1 Read This First

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Be sure to follow the important tips given here to continue to get the most use out of the DVB-10HD Receiver.

## 1.1 Prevent the DVB-10HD from getting wet.

- To avoid spills and the danger of electrical shock, keep liquids away from the DVB-10HD.

## 1.2 Protect the cables from being damaged.

- Applying strong force to cables may damage or break them.
- Route communication lines, or the cables of an AC adapter, or any other electronic device, so that they cannot be walked on, tripped over, pinched by the DVB-10HD or other objects, or in any way subjected to treatment that could interfere with the operation of the DVB-10HD.

## 1.3 Handle the DVB-10HD carefully.

- Do not drop, scratch, twist or place heavy objects on the DVB-10HD or its display.
- Slots and openings in the back of the product are provided for ventilation. To protect the product from overheating, these openings must not be blocked by placing against a soft surface such as a bed, sofa, or rug.
- Never push objects of any kind into this product through slots in the case as they may short out parts that could result in a risk of fire or electric shock.
- Use a quality carrying case that provides adequate cushioning and protection for the DVB-10HD, such as the one provided. Do not pack the product in a tightly packed suitcase or bag.

## 2 Safety Information

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This information can help you safely use your DVB-10HD. Follow and retain all information included with the DVB-10HD.

Customer safety is important. Our products are developed to be safe and effective. However, the DVB-10HD is an electronic device. Power cords, power adapters, and other features can create potential safety risks that can result in physical injury or property damage, especially if misused. To reduce these risks, follow the instructions included with this product, observe all warnings on the product and in the operating instructions, and review the information included in this document carefully. By carefully following this information, you can help protect yourself from hazards and create a safer work environment.

### 2.1 Conditions that require immediate action


Products can become damaged due to misuse or neglect. Some product damage is serious enough that the product should not be used again until it has been inspected and, if necessary, repaired by RGEAR. As with any electronic device, pay close attention to the product when it is turned on. Frequently inspect your DVB-10HD and its components for damage or wear or signs of danger. If you have any question about the condition of a component, do not use the product. Contact RGEAR customer support for instructions on how to inspect the product and have it repaired, if necessary.


In the unlikely event that you notice any of the following conditions, or if you have any safety concerns with your product, stop using and unplug it from the power source until you can speak to RGEAR customer support for further guidance.

- Cracked or damaged power cords, plugs, power adapters, extension cords, surge protectors, or power supplies;
- Signs of overheating;
- Trouble charging internal battery;
- Signs that liquid has been spilled onto the DVB-10HD, the power cord or power adapter;
- The DVB-10HD, power cord, or power adapter has been exposed to water;
- The product has been dropped or damaged in any way;
- The product does not operate normally when you follow the operating instructions.

### 2.2 Safety guidelines


Always observe the following precautions to reduce the risk of injury and property damage.

 Do not attempt to service a product yourself unless instructed to do so by RGEAR customer support or the product documentation.

 Use only the power cords and power adapters supplied by RGEAR. The power cord and power adapter are intended for use with this product only. The power cords shall be safety approved.

- Always route power cords or any other cables so that they will not be walked on, tripped over, or pinched by objects.
- Protect power cords and power adapters from liquids. Do not leave your cord or adapter near sinks, tubs, toilets, or on floors that are cleaned with liquid cleansers. Liquids can cause a short circuit, particularly if the power cord or power adapter has been stressed by misuse. Liquids also can cause gradual corrosion of power cord terminals and/or the connector terminals on a power adapter, which can eventually result in overheating.
- Do not use any power adapter that shows corrosion at the AC input pins or shows signs of overheating (such as deformed plastic) at the AC input or anywhere on the power adapter.
- Do not use any power cords where the electrical contacts on either end show signs of corrosion or overheating or where the power cord appears to have been damaged in anyway.

## 2.3 Batteries

 Never attempt to open or service any attached battery. Only recharge the battery according to instructions included in its product documentation.

Batteries can degrade when they are left unused for long periods of time. Do not let rechargeable lithium-ion batteries completely discharge or store the batteries in a completely discharged state.

Charging a lithium battery while it is at or below 0 degrees C (32° F) will result in damage to the battery and thus reduce its useful life. If done repeatedly the safety of the battery will be compromised.

- Keep the DVB-10HD and its attached batteries away from fire.
- Do not expose it to water or rain.
- Do not attempt to disassemble it.
- Do not short-circuit it.
- Keep it away from children.
- Do not drop the DVB-10HD.
- The DVB-10HD should be stored at room temperature.

## 2.4 Heat and product ventilation

The DVB-10HD, AC adapters, and many accessories can generate heat when turned on. Always follow these basic precautions:



- Do not operate your DVB-10HD near flammable materials or in explosive environments.

Ventilation slots, fans and/or heat sinks are provided with the product for safety, comfort, and reliable operation. These features might inadvertently become blocked by placing the product on a bed, sofa, carpet, or other flexible surface. Never block, cover, or disable these features.

For your safety, always follow these basic precautions with your DVB-10HD:

- Regularly inspect the outside of the DVB-10HD for dust accumulation.
- Remove dust from vents and any perforations in the bezel. More frequent cleanings might be required for DVB-10HDs in dusty or high-traffic areas.
- Do not restrict or block any ventilation openings.
- Ensure airflow temperatures into the DVB-10HD do not exceed 50° C (122° F).

## 2.5 Electrical current safety information



Electric current from power and communication cables is hazardous. To avoid a shock hazard:

- Do not use the DVB-10HD during a lightningstorm.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- Connect all power cords to a properly wired and grounded electrical outlet.
- Connect to properly wired outlets any equipment that will be attached to this product.
- Whenever possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.

### **3 Introducing the DVB-10HD Handheld Receiver Monitor**

The DVB-10HD is a COFDM (Coded Orthogonal Frequency Division Multiplexing) handheld digital diversity receiver for broadcast and motion picture production applications.

The DVB-10HD displays live video from a wireless DVB-T/T2 transmitter using digital COFDM technology. It automatically detects and adjusts both the decoding format (H.264 or MPEG-2) parameters including data rate, modulation, guard interval, code rate, variable GOP structure, and bandwidth pedestal. The receiver features a high definition color LCD for displaying live video.

The DVB-10HD is capable of linking to transmitters such as the GMS MDT, BMS NT Series and offerings from Cobham/DTC\* and others.

The DVB-10HD is DVB-T compliant and can receive from a tuning range of 5500MHz to 6000MHz\*\*. Channel presets can be renamed to suit the needs of your production.

\* In Standard Delay Mode

\*\* United States Legal Frequencies are 5725MHz to 5892MHz

Other features:

- Robust Two-Way diversity reception
- Automatically adjusts to all transmit parameters
- Displays live video with reduced delay versus other COFDM Receivers
- Built-in Hi-Resolution 10.1" LCD HDTV screen
- Handheld or mounted to stand
- On-screen menus
- Low power consumption - Long battery life
- HD-SDI Video Output and Input
- Analog Video and Audio outputs for remote monitoring
- FM Radio transmitter for wireless transmission of analog audio to any FM Radio within range

### 3.1 Hardware



Figure 1 – Top Hardware

**Antenna Connectors** – 2x Type-N Female Connectors for 5.8GHz RF Antennas

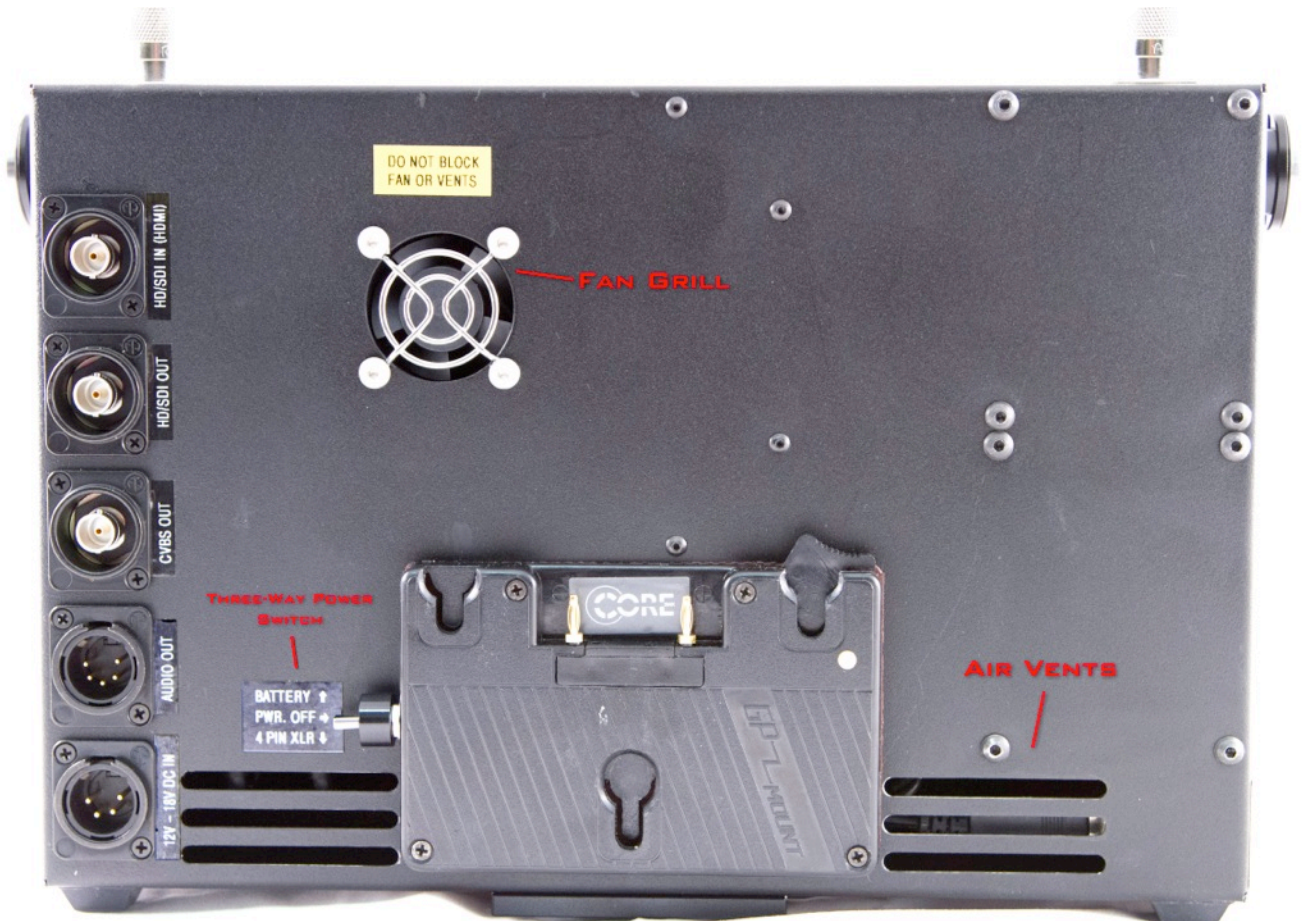


Figure 2 – Rear Hardware

**HD/SDI Video Out** – SDI or HD-SDI Video output for sending signal to another display or recorder

**HD/SDI Video IN** – SDI or HD-SDI Video Input for use as a hard-lined Monitor (note: Select “HDMI” from input Menu)

**CVBS Out** – Composite video signal output for remote viewing on analog composite TV monitor.

**Analog Audio Out** – 5-Pin XLR Stereo Unbalanced Line Level Audio

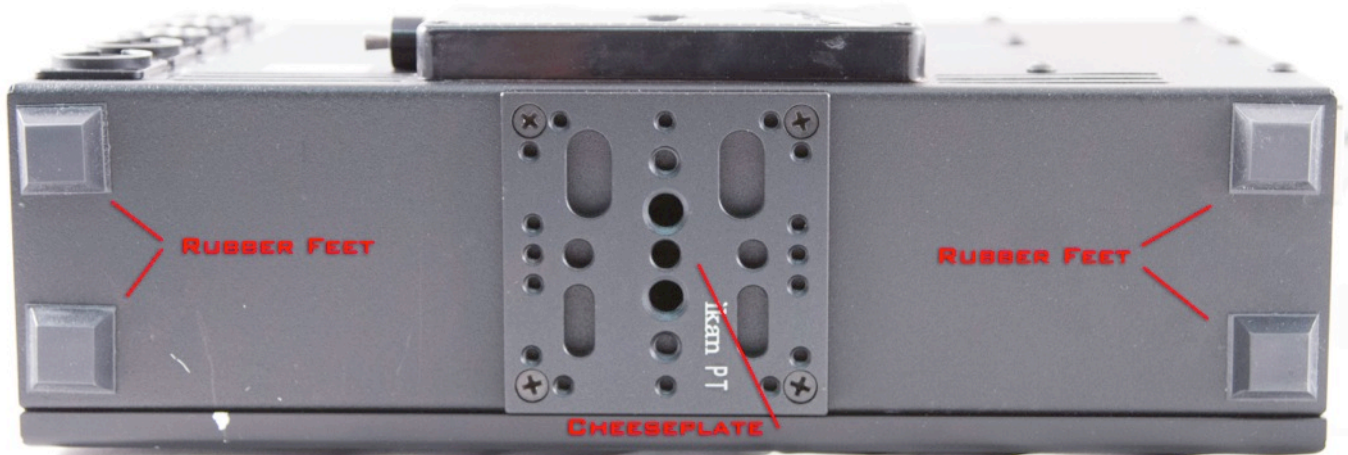
**DC Power In** – 4-Pin XLR for 9V-18VDC (Pin 1 = Ground / Pin 4 = +12V)

**Fan Grill** – Blower Intake - Do Not Block

**Air Vents** – Do Not Block

**Gold Mount Battery Plate** -- Anton Bauer Gold Mount Plate for 3 stud 14.4V rechargeable batteries

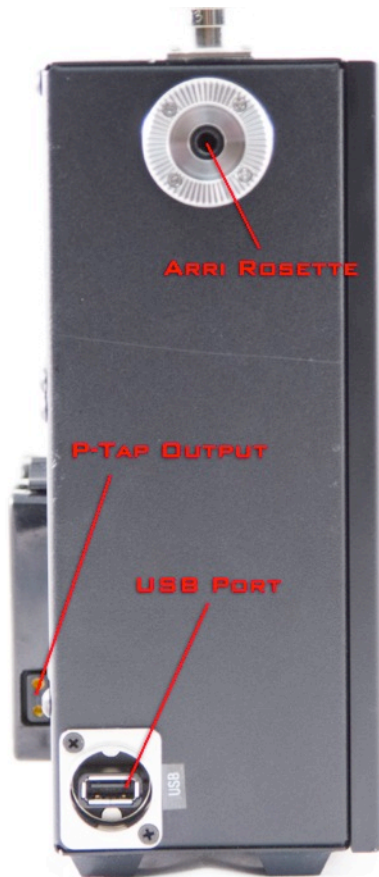
**Three-Way Power Switch** – Toggle switch controlling “powered on” state of the DVB-10HD. Up position selects Battery Plate power Input, Down Position selects 4-Pin XLR DC input; Middle position selects “Power OFF.” Note that the soft power switch on the monitor will not cut power to other internal components, only to LCD display – to power the unit down completely, turn the toggle switch actuator to the middle “off” position.



**Figure 3 – Bottom Hardware**

**Rubber Feet** – For setting the unit comfortably on a tabletop.

**Cheeseplate** – For attaching the unit to a tripod, light stand adapter or similar mounting surface.

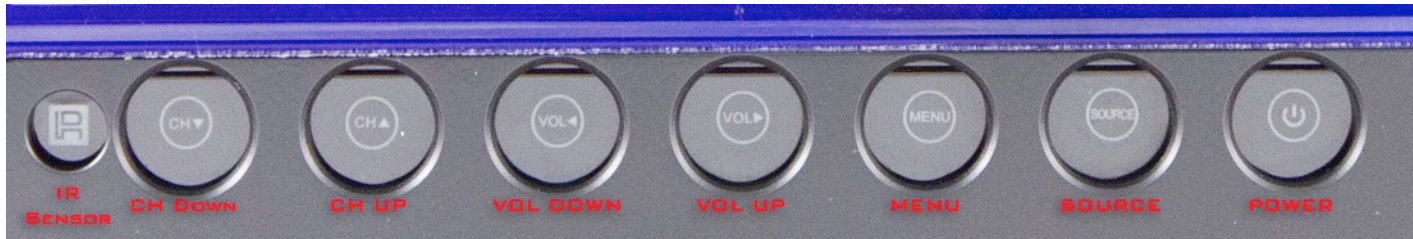


**Figure 4 - Side Hardware**

**Arri Rosette** – For attaching carrying handles and accessories with 6mm screw thread.

**P-Tap Output** – Unregulated DC output for accessories.

**USB Port** – for USB Memory Stick or 5V 1A USB Power supply output for external devices



**Figure 5 SOFTKEYS (Touch Sensitive)**

**Menu Button** – allows access to control menus

**Source Button** – Selects Input source: DTV (RF Receiver) or HDMI (for SDI Input) Note: AV Input is not enabled

**Channel Up / Down** – Select from stored preset channels or to maneuver up / down when in Menu mode

**Volume Up/Down** – Controls analog and digital audio output volume or to maneuver Left / Right when in Menu mode

**Power Button** – Powers off LCD panel and receiver but not other internal components – use toggle switch on battery plate to power off unit completely

**IR Sensor** – Infrared Sensor for wireless remote control of unit. Do Not Block.

## 4 Operation

### 4.1 Set-up

Remove from case.

Screw-on both antennas to a finger-tight fit

Attach battery to Gold Mount plate or connect a 12VDC power source to 4-Pin XLR jack to (10VDC Min. 18VDC Max)

Turn on power. A system startup splash screen COFDM will indicate the system is on and is booting up. The initial complete system boot and signal acquisition process will take approximately 20 seconds before received video is displayed on the screen.

### 4.2 Menus

To activate menu system press Menu on the remote control or front panel. The Main Menu will appear. Use U/D/L/R arrow buttons to maneuver through menu options. Press OK with remote to enter menu options.

### 4.3 Tuning

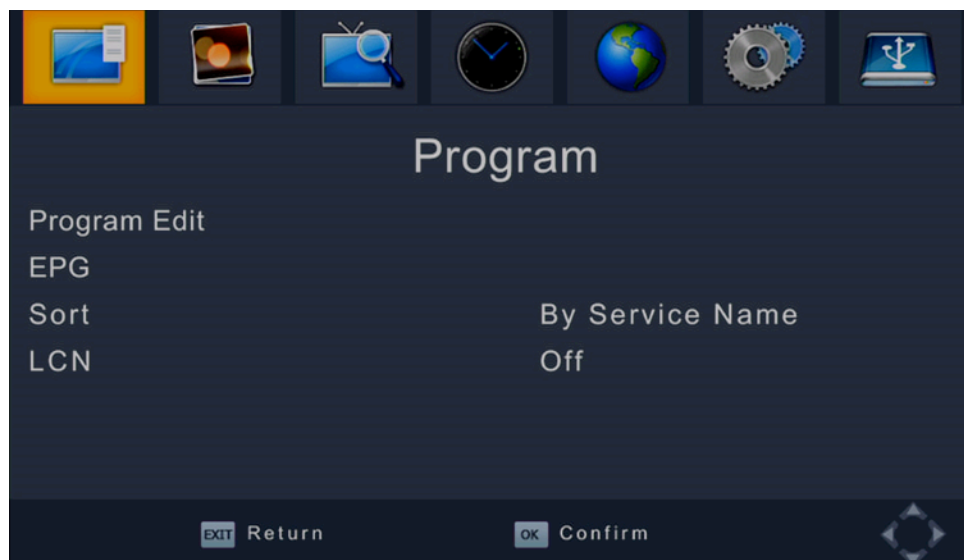
To tune to a specific preset frequency:

- Press Channel Up or Down using the wireless remote controller or on the front of the receiver. This cycles through preset channels stored in the DVB-10HD.

The DVB-10HD will detect video transmission and automatically adjust the receiver to match the COFDM transmit parameters. If no signal is detected on the target frequency, a "Searching for Source" indicator will appear in the center of the screen. If a transmitted video is present but not received or if the signal level is low, adjust antennas and/or transmitter output power. Pressing "Info" on the remote control twice will display received signal strength and quality indicators.

### 4.4 Adding New Channels

- First set the Transmitter to the desired frequency to add. This can be anywhere from 5500-6000MHz depending on model and environment.
- Next press the "Menu" key on the remote control.



- Using U/D/L/R arrow keys, scroll right twice to the "Channel Search" menu. Scroll down to "Manual Search" and press "OK".



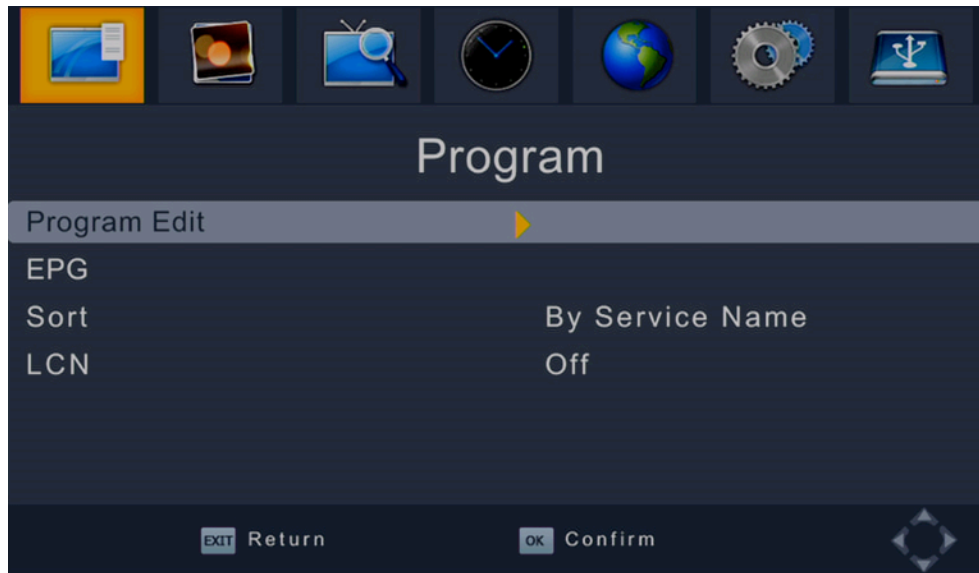
- Press down once to highlight the Frequency selection. Now, take your transmitter's frequency number and subtract 5200 from it. In this example, a 5504MHz frequency on the transmitter would be 304.0MHz on the receiver. Enter the subtracted frequency using the remote control.



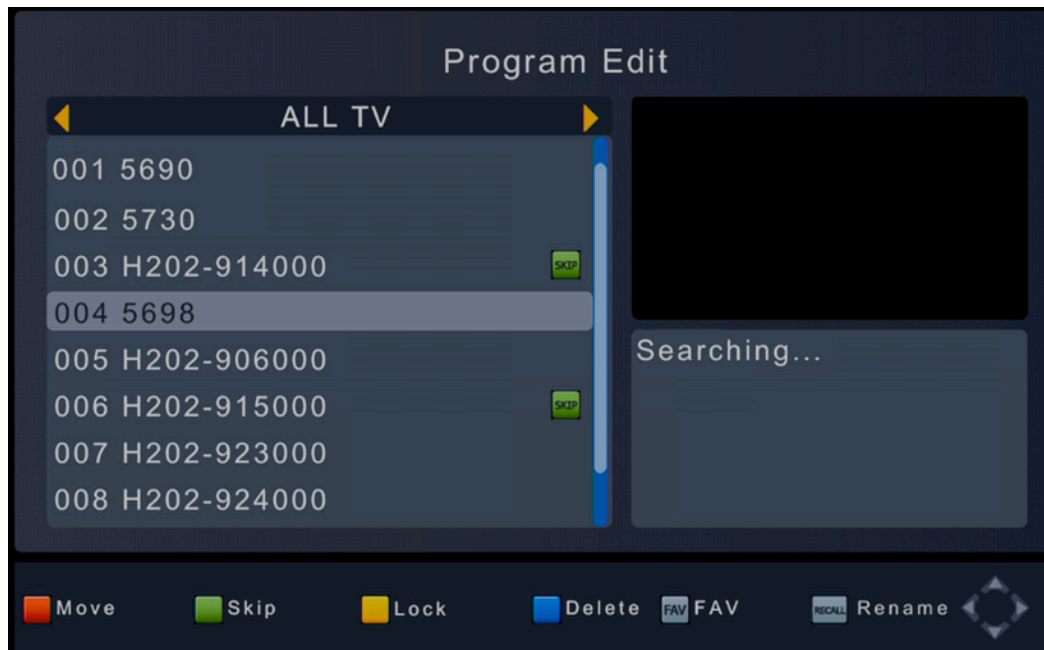
- If the receiver detects a transmission on this channel, the Level and Quality bars will read full.
- Now press "OK". A new preset will be created for this channel (but will not be seen until you channel up to the next channel). This preset will be labeled with the Service Name of this transmitter and will need to be renamed in the Program Menu.

## 4.5 Renaming Channels

- Press "Menu" on the remote control. The Program menu will appear.



- Scroll down to "Program Edit" and press OK.
- This Menu requires a password to access. Enter the default password: "000000". Now, scroll down to highlight the channel you want to rename.



- Press the "RETURN" button to bring up the keypad and use U/D/L/R arrow keys to move cursor to desired characters and press "OK" to enter text; when finished typing, select the OK soft-key on displayed keypad and press "OK" on the remote.



- Press Exit to Save settings.

#### 4.6 Deleting Channels

- Press "Menu" on the remote control. The Program menu will appear. Scroll to "Program Edit" and press OK.
- This Menu requires a Password to access. Enter the default password "000000"
- Using up/down arrow key, scroll to highlight the channel you want to delete and press the blue button on the Remote to place a blue Delete flag on the preset.
- Press the "OK" button to remove channel from list. Confirm deletion.



- Press "Exit" to save settings.

## 4.7 Changing Order of Channels in Master List

**Note: when sorting is set to Service Name, order will automatically be alphabetized and user order may be altered if new channels are added**

- Press "Menu" on the remote control. The Program menu will appear. This Menu requires a Password to access. Enter the default password "000000"
- Using up/down arrow key, scroll to highlight the channel you want to move and press the red button on the remote to place a Move flag on the preset.
- Scroll up or down to place channel in desired location
- Press the "OK" button to remove flag from preset
- Press "Exit" to save settings.

## 4.8 Placing a Skip Flag on Preset Channels in Master List

**Note: Placing Skip flags next to a channel preset in main memory will allow channel + / - buttons to skip over these presets when using the remote or on monitor front panel. Pressing the OK button with remote will bring up master list and allow access to select any of the stored presets include those without Skip Flags**

- Press "Menu" on the remote control. The Program menu will appear. This Menu requires a Password to access. Enter the default password "000000"
- Using up/down arrow key, scroll to highlight the channel you want to Skip and press the green button on the remote to add or remove a Skip flag on a preset.
- Press "Exit" to save settings.

# 5 LCD Display and Sound Menu

LCD control menus affect display and other features not related to tuning a COFDM signal. Press "Source" on the front panel, then press "Menu." The Picture menu will appear. From here, Right Arrow will bring up the Sound menu.



### **5.1 Picture Mode**

- Arrow down to Picture Mode and arrow right once. Options are Standard, Vivid and User. Adjustments in User Mode are Contrast, Brightness, Color and Sharpness

### **5.2 Color Temp**

- Arrow down two times to highlight Color Temp and press arrow right. Options are Cool, Medium, warm and User. User Mode allows adjustment to levels of Red Green and Blue.

### **5.3 Aspect Ratio**

- Arrow down three times to highlight Aspect Ratio and press arrow right. Options are Auto, 4:3, 16:9, Zoom1, Zoom2 and Just Scan (Under-Scan). Default setting is Just Scan mode.

### **5.4 Panel Tcon LD (Image Flip/Reverse)**

- Arrow down four times to highlight Panel Tcon LD and press arrow right. Options are Mirrored, Flipped and Mirrored or Flipped

### **5.5 Noise Reduction**

- Arrow down five times to highlight Noise Reduction and press arrow right. Options are Off, Low, Middle, High and Default.

### **5.6 Sound Mode**

- Arrow down to highlight Sound Mode and press arrow right. Options are Standard, Music, Movie, Sports and User. In User Mode, custom adjustment to levels of Bass and Treble can be made.

### **5.7 FM Radio Transmitter**

- The unit can wirelessly re-transmit the received wireless audio to any FM radio tuner within a close proximity. Arrow down 5 times to highlight FM and press arrow right to choose frequency. Options are Off, 87.7MHz, 87.9MHz, 88.1MHz, 88.3MHz, 88.5MHz, 88.7MHz, 88.9MHz and 89.1MHz. Exit to save. This works very well in cars to provide IFB audio to the speakers.