

MultiVue User Manual

1 Table of Contents

1	Table of Contents	2
2	List of Figures.....	3
3	List of Tables	3
4	Change History	4
5	About this Manual	5
6	Introduction	6
7	Warranty and Support.....	7
7.1	Warranty Cover	7
8	Safety	8
8.1	Safe Operating Procedures	8
8.2	EMC Approvals	8
8.3	CE marking	8
9	Getting Started and Basic Operation	9
9.1	Which Model do I have?	9
9.2	Understanding the MultiVue	10
9.3	Basic operation.....	12
9.4	External Connections on the domo MultiVue	23
10	Advanced Operation	25
10.1	Camera Setup Page.....	25
10.2	Advanced Window	27
10.3	Configuring a Camera Profile	29
11	Fault Finding	30
11.1	Indicated Faults.....	30
11.2	Fault Symptoms	31
12	LED Indicators.....	32
13	Special Connector Pin Outs	33
13.1	Receiver Audio Connectors – 5-pin 0B Lemo	33
13.2	S-Video – 4-pin Mini-DIN.....	33
13.3	DC Power Input – 4-pin XLR	33
13.4	Ctrl Port – 9-pin Male D-Type.....	34

2 List of Figures

Figure 1	Front view of the MultiVue lid	10
Figure 2	Top view of the MultiVue base.....	10
Figure 3	Rear view of MultiVue with external connector cabinet	11
Figure 4	domo MultiVue lid with Viewer and OSD function.....	13
Figure 5	The MultiVue Navigation Pane	14
Figure 6	System Control page.....	15
Figure 7	System Setup Window.....	17
Figure 8	Ethernet Configuration Page.....	18
Figure 9	Camera Setup Page.....	20
Figure 10	Received video with OSD.....	22
Figure 11	Camera Setup Page	25
Figure 12	Advanced Settings Window	27

3 List of Tables

Table 1	MultiVue product codes.....	9
Table 2	System Navigation Controls	14
Table 3	System Control Page	15
Table 4	System Setup Window	17
Table 5	Streaming Setup Page	18
Table 6	Camera Setup Page	20

4 Change History

Version	Main Changes from Previous Version	Edited By
v1.0	Initial Release	JQ
V1.1	Addition of streaming configuration information	JQ

5 About this Manual

This manual describes the operation of the domo SOLO4 MultiVue. The manual is divided into three main sections.

- **Getting started and basic operation**

This section describes to users how to deploy and use a domo MultiVue unit. It is effectively a simple quick start guide for the product.

- **Advanced operation**

This section describes the operation of the system in more detail, concentrating particularly on advanced use of the touch screen controller.

- **Technical reference**

This section provides technical specification and control protocol data and will be of interest to those integrating the MultiVue into larger systems.

6 Introduction

The domo SOLO4 (and SOLO2) product range enables the user to build wireless digital microwave video systems. The domo SOLO4 products have been designed to provide rugged point-to-point links for high quality full frame rate video, and audio, even in non line of sight and urban environments.

Existing analogue systems suffer from impairments such as video noise, loss of colour information and poor image quality when line of sight cannot be maintained, and solutions based on wireless internet standards and PC platforms deliver poor quality video.

The domo SOLO4 system is a digital system that uses the COFDM modulation technique, which effectively eliminates the problems caused by multi-path and reflections.

The domo MultiVue system, is a portable solution for use in quick and easily deployment applications.

Features:

- Four simultaneous video reception and viewing.
- Comprehensive Demodulation 8 / 7 / 6 / 2.5 and 1.25MHz (optional)
- Up to four way Maximum Ratio Combining antenna diversity for fade and multipath elimination.
- Two lid mounted antennas.
- 15" colour monitor in lid.
- Mains and DC operation.
- Comprehensive On Screen Display (OSD) diagnostics for link analysis, including spectrum analyser.
- 8.4" touch screen in base for system configuration and control.
- Headphone or Speaker output. (*Depending on option*)
- ABS, AES 128 or 256 encryption.
- Monitor Video output, selectable between any of the four channels and a quad split mode.
- Ethernet Streaming option
- 4 Composite Video or S-Video outputs (Link to recorders)
- Quad or single video view

IMPORTANT NOTE

The MultiVue system has been specifically designed for government security and law enforcement users, the equipment will tune across frequencies that are only available to licensed government users. Non-government users should employ the equipment restricted to the license exempt bands only typically 1.389 to 1.399GHz and 2.400 to 2.483GHz.

7 Warranty and Support

7.1 Warranty Cover

domo offers a 12 month standard product warranty. During this period, should the customer encounter a fault with the equipment we recommend the following course of action:

- Check the support section of the website for information on that product and any software/firmware upgrades. If fault persists;
- Call our support line and report the fault. If fault persists and you are informed to return the product please obtain an RMA number from the domo support department, and ship the equipment with the RMA number displayed and a description of the fault. Please email the support section the airway bill/consignment number for tracking purposes.
- If you have extended warranty provisions then domo will send an immediate advance replacement to you. Under most circumstances this must be returned once the fault item is repaired.

Depending on the nature of the fault domo endeavor to repair the equipment and return it to the customer within 14 days of the item arriving at our workshops.

Obviously it is impossible to cater for all types of faults and to manage 100% replacement part availability, and delays are sometimes inevitable. This is why domo recommend that its customers take out an extended warranty (which includes advanced replacement of faulty items), and/or hold a basic level of spare parts, which can be held by domo on the customer's behalf.

Please contact domo for details of packages that can be tailored to meet your individual needs, whether they are service availability, technical training, local geographic support or dedicated spares holdings.

8 Safety

8.1 Safe Operating Procedures

- Ensure that the power supply arrangements are adequate to meet the stated requirements of the product.
- Caution: When using the DC input ensure the DC supply is capable of 12V at a minimum of 15A.
- Operate within the environmental limits specified for the product.
- Do not subject the indoor equipment to splashing or dripping liquids.
- Only authorised, trained personnel should open the product. There are no functions that required the User to gain access to the interior of the product.
- **The unit is designed only to be operated with the Lid open to ensure adequate airflow.**
- **The MultiVue with the lid up, should not be exposed to prolonged rain fall, this will cause damage.**

8.2 EMC Approvals

The equipment has been designed to meet and has been tested against the following harmonized EMC and safety standards:

- EN 55022:1998, Class A
- EN 60950:2006

8.3 CE marking

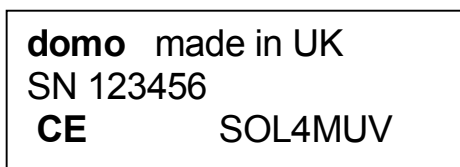
The CE mark is affixed to all SOLO4 and SOLO2 products, and the CE Declaration of Conformity, as well as the technical file are available on request.

9 Getting Started and Basic Operation

9.1 Which Model do I have?

Each SOLO4 MultiVue unit is marked with a serial number and product code label. The diagram of the label is shown below.

- Product Code Panel. Give product code and manufacturers information.
- CE and Serial Number Panel. Gives CE mark and product serial number.



The **domo** product code and options can be referenced in the table below..

Table 1 MultiVue product codes

Product Code	Product	Accompanying items
SOL4MUV-100140	SOLO4 MultiVue Receiver, 1GHz – 1.4GHz. Base model, 2x integral antennas and down converters. IP streaming, not included.	Cables: Mains Power Cable DC Power Cable 2x External Audio Cable
SOL4MUV-228255	SOLO4 MultiVue Receiver, 2.28GHz – 2.55GHz. Base model, 2x integral antennas and down converters. IP streaming, not included.	Cables: Mains Power Cable DC Power Cable 2x External Audio Cable
NETCRXIPUP	IP Video Streaming Option	None
AES128 / AES256	AES128 or AES256 Decryption Option	None

Note: Use of External down converters must be checked as they are frequency specific.

9.2 Understanding the MultiVue

The domo MultiVue is a tactical microwave receive case incorporating the following principle components.

- Diversity antennas
- 15" viewing screen
- Four way COFDM digital video receiver
- 8.4" Touch screen control interface

These principle components are highlighted in the photographs below.

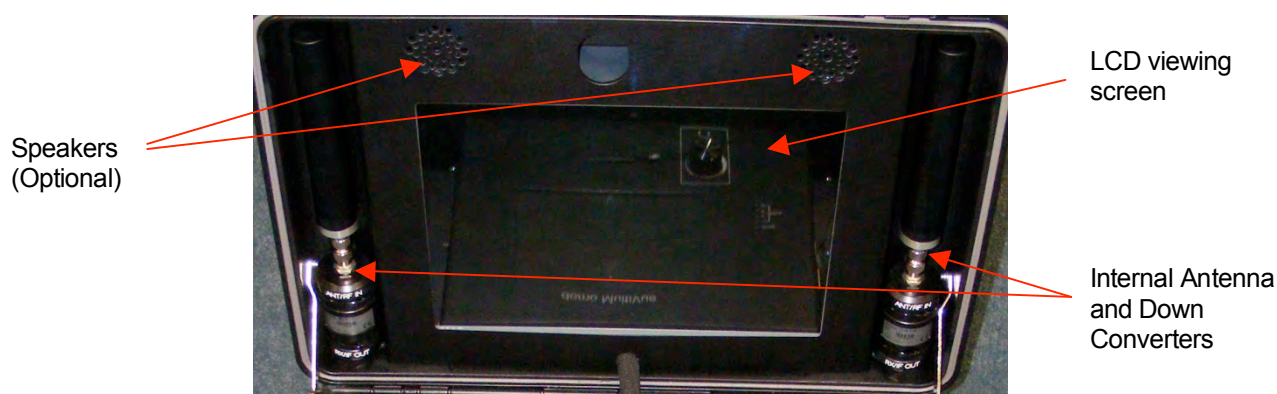


Figure 1 Front view of the MultiVue lid

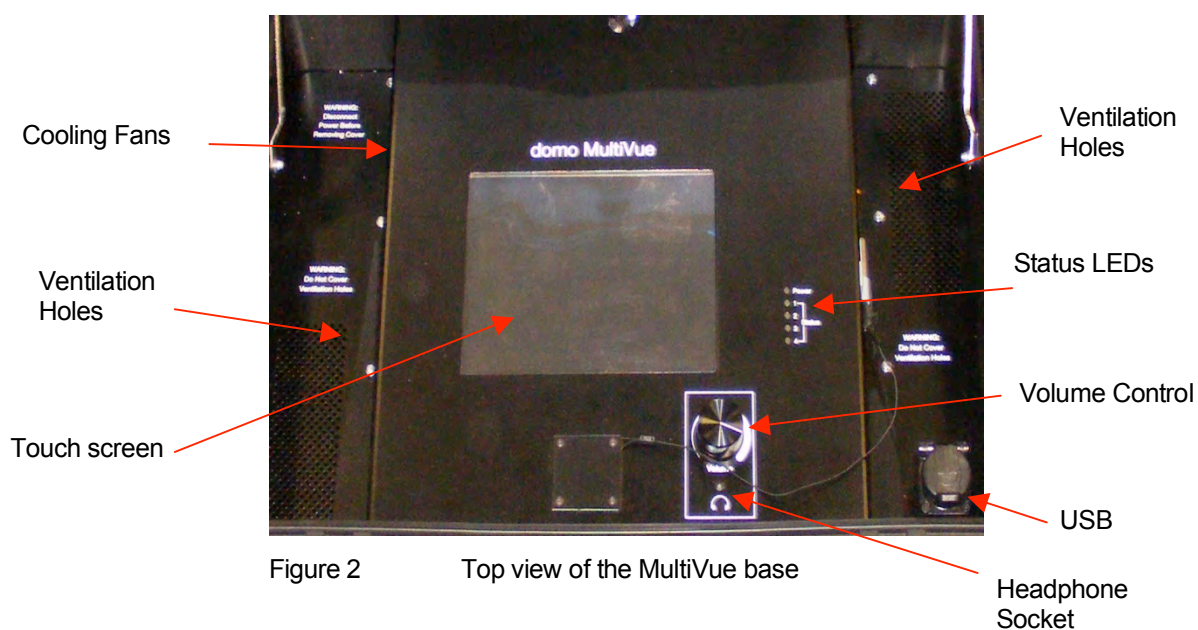


Figure 2 Top view of the MultiVue base

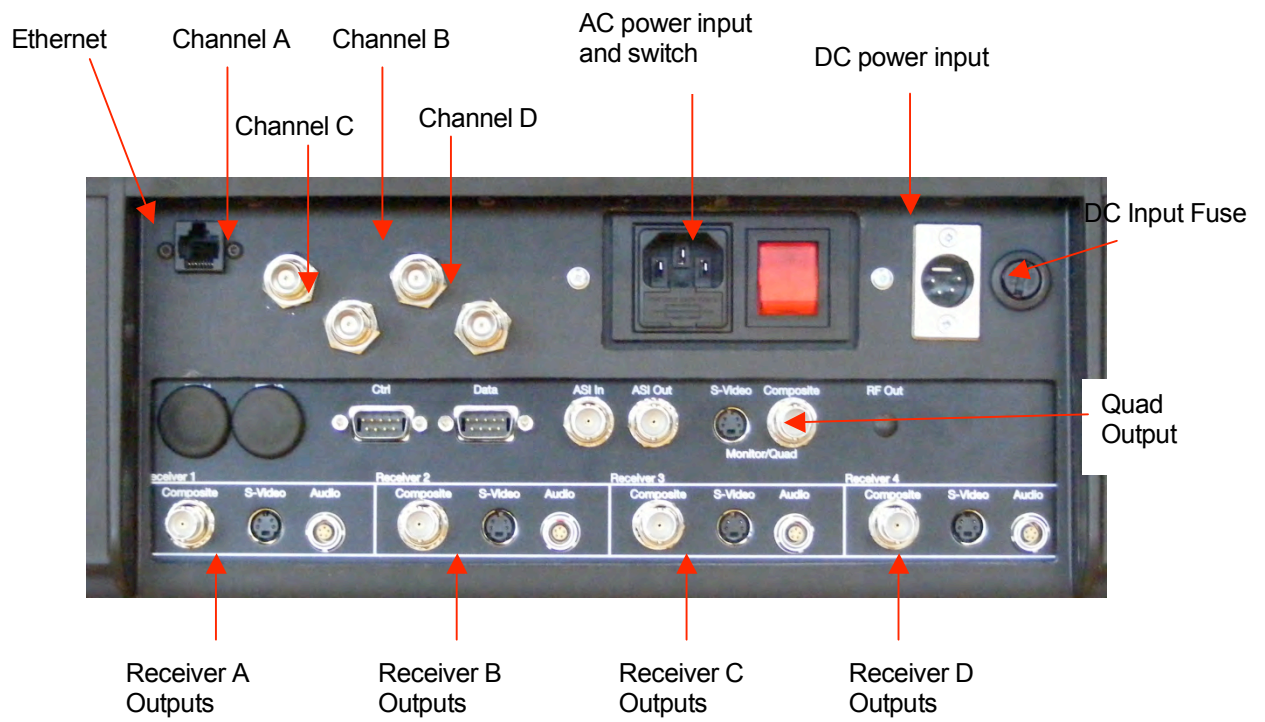


Figure 3 Rear view of MultiVue with external connector cabinet

9.3 Basic operation

Connection to AC Mains

The MultiVue system can be supplied from an AC Mains supply and has the following characteristics.

Fuse:	3.15A Type T
Voltage:	100 to 250V, 50-60Hz Auto Sensing Supply
Connector:	IEC Mains Socket.

Connection to DC Supply

The MultiVue system can be supplied from a DC supply and has the following characteristics.

Fuse:	16A, 32mm Cartridge
Voltage:	9 to 36V
Current:	Max 15A (at 12V)
Connector:	4 way XLR.

Applying power to the MultiVue System

The system is powered either by direct connection from the external DC supply or by connecting the mains supply and switching the mains switch to the ON position.

On powering the MultiVue, the Power LED will light as a 'Solid' green colour and progress to a flashing green. The sound of the internal cooling fans will be heard. The four status LEDs will be red.

Shut Down of the MultiVue System

The MultiVue system runs an internal single board computer and therefore must be shutdown before switching off or removing power from the unit.

To shutdown the unit, press the 'Shutdown' button on the user interface screen. The system will shutdown safely and inform the user when power can be removed from the system.

If this shutdown sequence is not followed then damage to the system is likely to occur.

Understanding the Viewer Screen

When the system is switched on the lid viewer screen will power up. The domo logo is displayed first followed by the current video display.

Note: A 'Blue Screen' will be displayed if the MultiVue receiver can not lock to a suitable microwave source.

Note: A translucent OSD (On Screen Display) may be present in the left hand side of the screen, see later in this section on 'Understanding and Interpreting the On Screen Display' for more details.



Figure 4 domo MultiVue lid with Viewer and OSD function

Understanding the Touch Screen Control Interface

In the base of the unit is an 8.4" touch screen which is used to control and configure the MultiVue system.

On powering on the domo MultiVue, the touch screen will show the domo logo before booting into Windows XP embedded (XPe). Once XPe has booted up the MultiVue Control application will automatically launch (shown below)

The control interface is divided into three parts, System Control page, Camera Setup page and the navigation pane. The navigation pane is visible all the time at the bottom of the screen and enables the user to navigate around the control interface.

At startup the control interface launches into the System Control page which is used to select the video that is displayed on the lid viewer screen.

The touch screen is quite responsive and will react to firm but gentle pressure applied to any of the buttons.

Note: Navigation through the touch screen menu's may be done either by hand or with a stylus. However, the touch screen can be damaged if pressed too hard, or pressed with a sharp implement..

Navigation Pane

This area of the interface is always present at the bottom of the screen and allows the user to navigate around the controller software application.

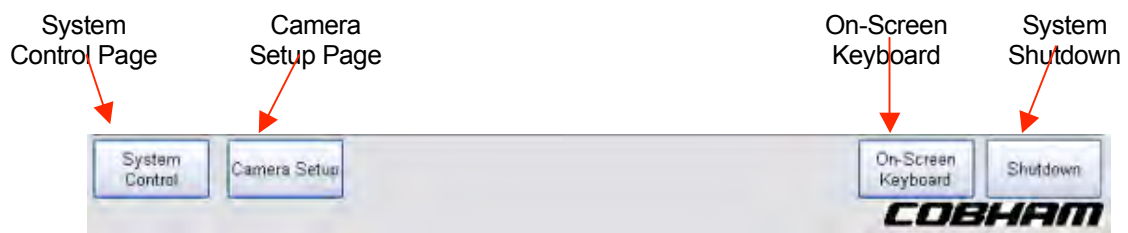


Figure 5 The MultiVue Navigation Pane

The functions of the buttons on the Navigation Pane are outlined in the table below.

Table 2 System Navigation Controls

Field / Button	Meaning / Use
System Control	This button selects the System Control Page
Camera Setup	This button selects the Camera Profile Setup page. This page allows the user to configure settings for the receiver such as frequency.
On-Screen Keyboard	This button launches the On-Screen Keyboard for editing text fields
Shutdown	This is used to safely shutdown the MultiVue system.

System Control Page

This page controls the viewer screen display and the camera profile assignments for each view.

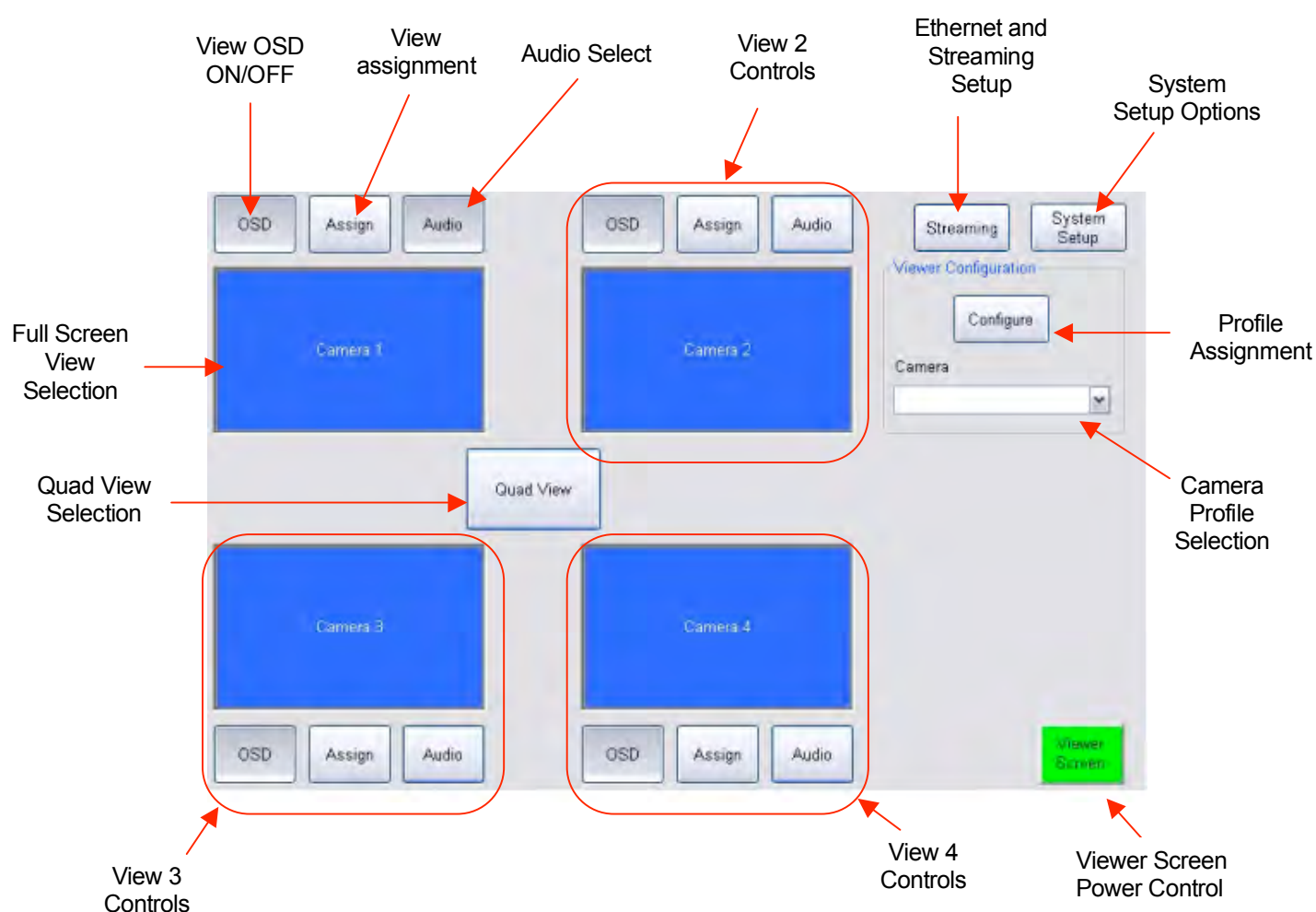


Figure 6 System Control page

The functions of the fields on the System Control page are outlined in the table below.

Table 3 System Control Page

Field / Button	Meaning / Use
View 1/2/3/4	These buttons select the receiver input to be displayed full screen on the viewer in the MultiVue lid.
Quad View	This button displays all four receiver inputs to the viewer screen
OSD	On Screen Display – There are four of these buttons, one for each view and toggle the OSD ON/OFF when pressed.
Assign	Each of these prepares its corresponding view to be assigned with a camera setting. These are used in conjunction with 'Configure' button

Audio	These buttons select which view audio is to be fed to the headphone socket.
Configure	This button configures a view with the camera settings profile in the 'Camera' drop-down list. The appropriate 'Assign' button must be pressed first.
Camera	This drop-down box contains the list of camera profiles present on the MultiVue system
Viewer Screen	This button toggles the viewer screen power. Green means that the Viewer screen is on and Red means the viewer screen is in standby.
Streaming	This button launches another window allowing the user to configure the IP and broadcast stream settings for the MultiVue system.
System Setup	This button launches another window that allows the user to configure the LNB power and output standard.

Changing the View Camera assignment

To assign a view with a camera profile, follow the steps below.

1. Press the adjacent 'Assign' button to the view required.
2. Select the camera profile from the Camera drop-down list
3. Press the configure button.
4. Allow approximately 5 seconds for the receiver to be configured and the picture to be displayed.

View Selection

There are five buttons on the 'System Control' page that control the viewer selection. The four largest buttons are used to select which view is to be displayed full screen and the 'Quad View' button displays all four views on the viewer screen.

System Setup Window

This window enables the configuration of the Low Noise Block power settings and output standards for all four receivers in the system.

Note: The nature of this system does not allow a mix of output standards across the receivers.

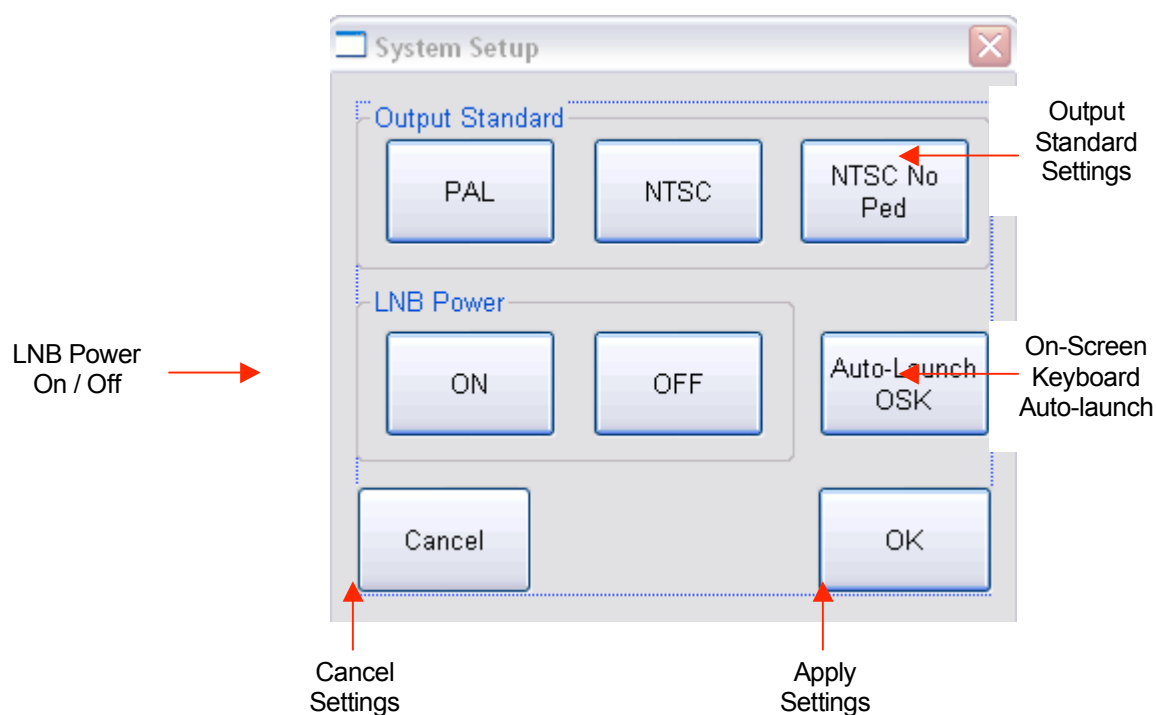


Figure 7 System Setup Window

The functions of the fields on the Camera Setup page are outlined in the table below.

Table 4 System Setup Window

Field / Button	Meaning / Use
Output Standard	This field allows the user to select the line standard of video the receiver will output. This can either be PAL, NTSC or NTSC (no pedestal).
LNB Power	This field allows the user to toggle the power for the low noise block.
Auto-Launch OSK	This button toggles the auto-Launching of the On-Screen keyboard. Setting this causes the OSK to automatically launch when page or window contains editable fields.
OK	This button instructs the system to configure the receivers with the current displayed settings
Cancel	This button ignores any changes to the settings and leaves the current receiver settings as they are.

Streaming Setup Page

This page allows the configuration of the MultiVue IP and broadcast streaming settings.

Note: Due to the construction of the MultiVue system it requires two IP addresses before connecting to a network.

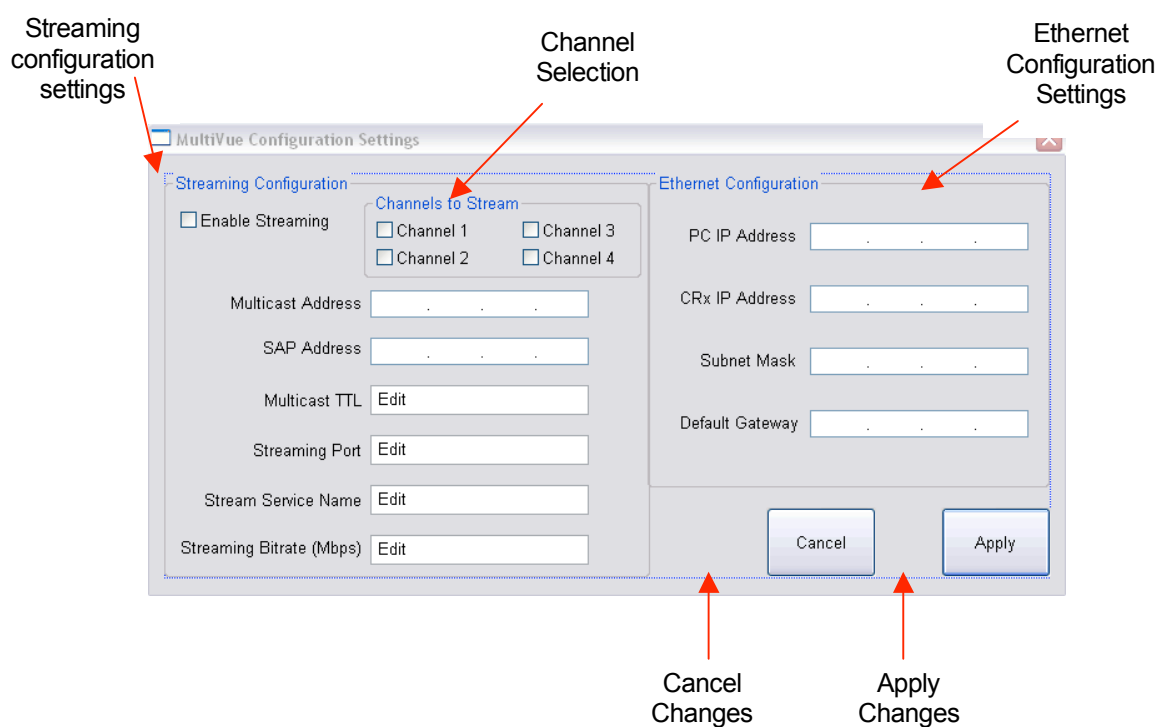


Figure 8 Ethernet Configuration Page

The functions of the fields on the Ethernet configuration page are outlined in the table below, all settings are not implemented until the Apply button is pressed.

Table 5 Streaming Setup Page

Field / Button	Meaning / Use
Streaming Configuration	This field allows the user to select the streaming settings required to broadcast the received stream to a network.
Channels to Stream	This field allows the user to select which channels are to be output on the streaming service.
Enable Streaming	This toggles the streaming on and off.
Ethernet Configuration	This field contains the settings required to connect the MultiVue to a network. Note that two IP addresses are required.

Connecting the MultiVue to a Network

If the intention is to use the streaming option of the MultiVue then please also refer to the 'Network Requirements for IP Streaming' section below.

Before connecting the MultiVue to a network obtain the appropriate settings from your network service provider.

Enter the IP addresses in the Ethernet Configuration Field and click apply, this action will cause the MultiVue to reboot. Following the reboot the MultiVue is now ready to connect to a network.

Note: The MultiVue will only reboot if the Ethernet Configuration settings have changed, the Streaming settings can be changed without causing a reboot.

Connect an appropriate Ethernet cable to the Ethernet RJ45 connector on the rear of the MultiVue.

Network requirements for IP Streaming

The MultiVue Streaming option will stream the video and audio services received on its input onto the Ethernet IP output.

The Ethernet IP output connector is 100BaseT compatible.

The Ethernet IP RJ45 output connector must be connected to a network of suitable capacity, typically this is a private LAN. The capacity required is the aggregate of the bitrate of the incoming services. Typically the bitrate will be a minimum of 3Mb/s and a maximum of 25Mb/s. Therefore a Network of at least this capacity is required, these kinds of capacity are only available on Private LAN networks.

Note: The high bitrate requirements of streaming video mean that public networks such as 3G or the internet will not be suitable.

Note: The streaming video format is Multicast UDP streaming, users should ensure with their network provider that Multicast UDP streaming is enabled on the routers and switches of the network.

Enabling the Streaming

1. Enter the appropriate streaming setting with the advice of you network service provider.
2. Select the channels to stream within the service.
3. Set the 'Enable Streaming' setting to ON.
4. Click the 'Apply' button.
5. The output stream is now running.

Note: If the stream is poor quality, try increasing the bit-rate in the Streaming Configuration page and click 'Apply'.

Camera Setup Page

This page allows management of the camera profile list and profile settings.

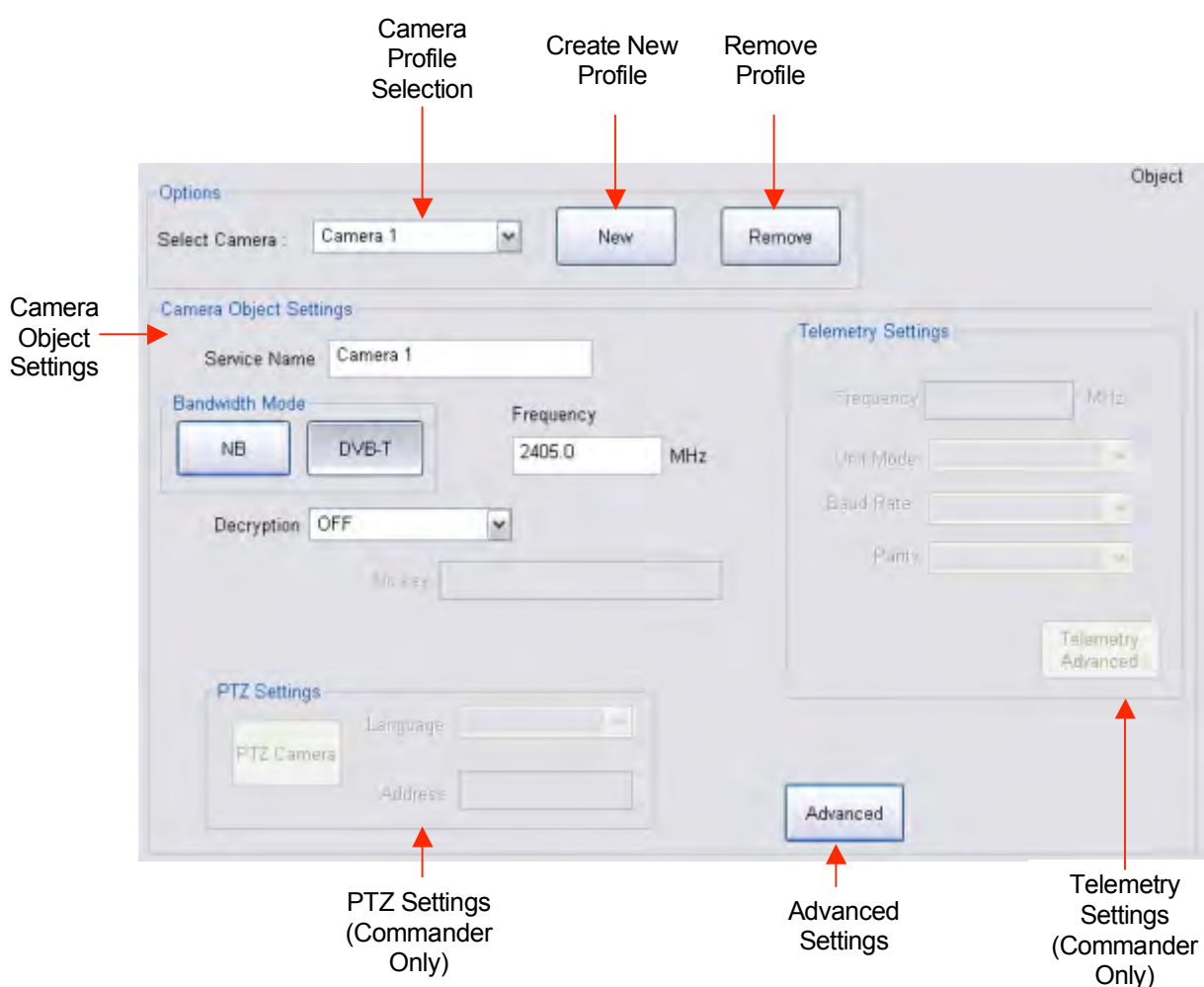


Figure 9 Camera Setup Page

The functions of the fields on the Camera Setup page are outlined in the table below.

Table 6 Camera Setup Page

Field / Button	Meaning / Use
Camera Profile Selection	This contains all the profiles present on the MultiVue system and is used to select the profile required for editing.
Create New Profile	This button creates a new profile with default settings and adds it to the profile list
Remove Profile	This button removes the profile that is displayed in the profile list window.
Camera Object	This area contains all the settings required for a camera profile

Settings	
PTZ Settings	This area enables the configuration of the PTZ language and address to be used. (This is only available with the MultiVue Commander option).
Advanced	This button launches the advanced settings windows containing more camera object settings.
Telemetry Settings	This area contains the settings for the telemetry configuration. (This is only available with the MultiVue Commander option).

Deploying and Operating the domo MultiVue

The domo MultiVue is a tactical digital video receiver, and the following guidelines should be employed when using the equipment.

- The MultiVue should be operated with the lid up and the internal antennas vertical for best performance.
- No objects are to be placed over the ventilation holes.
- An open unit with the lid up should not be exposed to prolonged rain fall, as this will cause damage.
- Depending on the RF environment (line of sight or non line of sight) and the power of the transmitter (100mW or 1W), the MultiVue will operate at a range typically 300m to 1km from the target transmitter.
- If the MultiVue is being operated inside a building or vehicle, better results may be achieved by using the external antenna inputs on the rear of the MultiVue and deploying the antennas to the outside of the building or vehicle.
- To prevent damage to the MultiVue, it should not be operated too close (within 5m typically, further if the transmitter is greater than 1W in power) of the transmitter.

Using and Interpreting the On Screen Display (OSD)

The MultiVue On Screen Display (OSD) tool is an extremely useful tool for system set-up and diagnostic.

The OSD facility will 'burn' diagnostic data onto the video output for test and set-up purposes. Pressing the OSD button will enable this facility and a diagnostic screen will appear in the video as shown below.

The OSD function has two settings.

Press OSD button once to display OSD.

Press OSD button again to switch off OSD function.



Figure 10 Received video with OSD

The displayed diagnostic data includes a spectrum display, signal to noise data, input power level and frequency. The received spectrum display is useful when checking for interference signals, the SNR indicated signal quality. For more information on use of this facility a demo training course is recommended.

When setting a domo system up the OSD should be used in the following way.

Check Channel is Clear

With the transmitter OFF, check that the channel is empty of interference signals, this is confirmed by ensuring that the reported power in the channel is at -99dBm and that the spectrum is shown as a rounded dome with no obvious spikes or tones.

Check Quality of Link

Switch on the transmitter and confirm that SNR is 6 or greater and that power level is at least -92dBm or greater. This represents approximately a 5dB margin. Failure of the link will occur when the power level reaches -97dBm or the SNR reaches 3dB.

9.4 External Connections on the domo MultiVue

The rear equipment cabinet of the domo MultiVue incorporates a number of external connections, as shown in Figure 3.

- Four Composite and S-Video Outputs, for external viewing of receiver video.
- Quad Video output for view all four video outputs together.
- Four Audio Outputs, for connecting external audio output devices.
- Data, for data output and receiver software upgrading.
- UHF In C and D, for connecting external antennas. See Advanced operation section.
- One USB connection for USB Keyboard and PC Updates.
- One Ethernet port for Streaming and PC updates

Connection of Video Signals

The MultiVue is provided with four composite video output connectors labelled 'Composite', and four S-Video connectors labelled 'S-Video'.

Connector	Signal
Video BNC	75 ohm composite video output, PAL or NTSC software selectable at the transmitter

Typically the video display device will be a high quality monitor.

It should be noted that for ease of use the domo MultiVue is fitted with a quad screen output, in which all four video outputs are multiplexed into a quad screen and displayed on a single screen. This output is labelled 'Quad Monitor Composite'.

Connection of Audio Signals

The MultiVue is provided with five Audio output connectors. Four are situated at the rear of the unit labeled 'AUDIO' and the fifth is on the control panel inside the case labeled with the headphone logo.

Connector	Signal
Rear Audio	Line level, 12dBu clip level, low impedance source (20 ohm)

Typically the audio output device will be monitoring speakers for the rear connections and a headphone set for the control panel connection.

Note: The headphone socket operates independently from the rear audio connections. Therefore connecting headphones will not block the external audio outputs.

Connection of USB device

The MultiVue can have USB devices connected to it such as a USB keyboard to aid in the editing of profile settings.

Connection to IP LAN

The 10/100BaseT Ethernet network should be connected to the RJ45 connector at the rear of the unit.



10 Advanced Operation

10.1 Camera Setup Page

Main settings

The screenshot displays the 'Camera Setup Page' interface. At the top, there's an 'Options' section with a 'Select Camera' dropdown set to 'Camera 1', and 'New' and 'Remove' buttons. Below this is the 'Camera Object Settings' section, which includes a 'Service Name' field containing 'Camera 1'. The 'Bandwidth Mode' section has two buttons: 'NB' (selected) and 'DVB-T'. To the right of these is a 'Frequency' field set to '2405.0' MHz. Below the bandwidth mode is a 'Decryption' dropdown set to 'OFF' and a 'No key' field. On the right side, there's a 'Telemetry Settings' section with fields for 'Frequency', 'Unit Mode', 'Baud Rate', and 'Parity', each with a dropdown or input field. Below this is a 'Telemetry Advanced' button. At the bottom left, there's a 'PTZ Settings' section with a 'PTZ Camera' button, a 'Language' dropdown, and an 'Address' field. An 'Advanced' button is located at the bottom right of the main settings area.

Figure 11 Camera Setup Page

Service Name

This field allows the user to enter an identifier for the service that they wish to receive. This must match that selected at the transmitter (Unit name) for the service to be decoded. The service name can be constructed of any eight ASCII characters.

Bandwidth Mode

The MultiVue is capable of receiving transmissions in both Narrowband and DVB-T. For receiving the transmissions from a SOLO2 transmitter the 'DVB-T' radio button should be selected. For receiving the transmissions from a SOLO4 transmitter the 'Narrowband' radio button should be selected.

When the 'Narrowband' button is selected, then 'Narrowband' specific settings can be configured in the 'Advanced' Settings window.

If the 'DVB-T' button is selected, then 'DVB-T' specific settings can be configured in the 'Advanced' Settings window.

Note: The bandwidth option must be chosen before opening the 'Advanced' window.

Note: The terminology DVB-T refers to the 8,76MHz wide bandwidth modulation employed in the SOLO2 products. The SOLO4 product is also capable of DVB-T, but this mode is not recommended for normal operation

Frequency (MHz)

The receive frequency can be set by entering the desired frequency in this field. Values outside the range supported by a particular transmitter type will be rounded to the highest of lowest supported frequency as appropriate.

The receive frequency can be set in step sizes of 250kHz.

Decryption

If the AES encryption option has been purchased for the SOLO2 or SOLO4 system in use, then it is possible to decrypt the link. Decryption must be enabled at the receiver by selecting either AES128 or AES 256 in the descrambling field. The decryption key can then be entered into the fields that appear below the option field.

10.2 Advanced Window

This window enables the user to configure the advanced settings of a camera profile.

Note: The bandwidth option must be chosen before opening the 'Advanced' window as some settings are bandwidth specific.

The screenshot shows a window titled "Camera Profile Advanced Settings". It contains the following controls:

- Service Name: Text input field.
- Input Frequency: Text input field followed by "MHz".
- Down Converter LO: Text input field followed by "MHz".
- Down Converter LO side: Dropdown menu.
- OFDM Bandwidth: Dropdown menu.
- OFDM Guard: Dropdown menu.
- ODFM Polarity: Dropdown menu.
- NTSC Mode: Dropdown menu.
- MPEG4 Deblocking: Dropdown menu.
- Data: Dropdown menu.
- Buttons: "Cancel" and "OK" at the bottom right.

Figure 12 Advanced Settings Window

Service Name

This field allows the user to enter an identifier for the service that they wish to receive. This must match that selected at the transmitter (Unit name) for the service to be decoded. The service name can be constructed of any eight ASCII characters.

Input Frequency (MHz)

The receive frequency can be set by entering the desired frequency in this field. Values outside the range supported by a particular transmitter type will be rounded to the highest or lowest supported frequency as appropriate.

The receive frequency can be set in step sizes of 250kHz.

Down converter LO

This field allows definition of the local oscillator frequency in the connected downconverters.

For demo supplied downconverters, this should be set as follows:

- 1880MHz for S band transmissions (2.28 to 2.55GHz)
- 1700MHz for L band transmissions (1.15 to 1.4GHz).

Down converter LO side

This field allows definition of the local oscillator side.

For demo supplied downconverters, this should be set as follows:

- LOW for S band transmissions (2.28 to 2.55GHz)
- HIGH for L band transmissions (2.28 to 2.55GHz)

OFDM Bandwidth

This field displays the width of the received OFDM signal and should be set to 2.5MHz for normal SOLO4 system operation, and should be set to 8MHz for normal SOLO2 system operation.

OFDM Guard

In this field the user selects the guard interval which matches the transmitter. For SOLO4 systems typically a guard interval of 1/16 is used, however on very long range transmissions a guard interval of 1/8 may be employed. For SOLO3 systems typically a guard interval of 1/32 is used, however on very long range transmissions a guard interval of 1/8 may be employed.

OFDM Polarity

This option can control the polarity of the OFDM RF spectrum to be set to standard or inverted.

NTSC Mode

With this control, when running in NTSC line mode, the user can select whether the NTSC composite output video has a 7.5 IRE pedestal applied.

MPEG4 Deblocking

This field toggles the MPEG4 deblocking filter which helps prevent blocking artifacts common in Discrete Cosine Transform (DCT) based image compression. Enabling the filter can lead to a better visual appearance and compression efficiency.

Data

With this ON / OFF control the user can select whether the receiver extracts any data component that may be in the transmitted stream. Such data components are presented at the receiver DATA output port.

10.3 Configuring a Camera Profile

Creating a new profile

1. Press the On-Screen keyboard button to launch the windows On-Screen Keyboard if no USB keyboard is connected.
2. In the 'Camera Setup' page, press the 'New' button.
3. In the 'Create New Object' dialog enter the new object name and press 'OK'.
4. The new profile is added to the list and the default settings are presented ready for editing.

Editing a Profile

Firstly select the camera profile you want to edit using the camera object drop down list at the top of the page.

The current settings for the profile are then displays in the relevant fields on the Camera Setup page and in the advanced settings dialog.

Note : As the settings are saved as they are edited and therefore there is no undo option.

Removing a Profile

1. Select the profile you want to delete from the camera profile list.
2. Press 'Remove'.

The profile will be deleted from the system and its entry removed from the profile list.

11 Fault Finding

11.4 Indicated Faults

Power LED Condition	Meaning	Action
Flashing Amber	Data buffer overflow on streaming or rebroadcast.	Check that the streaming and rebroadcast settings are suitable to carry the incoming data rate from the selected channels.

Channel Status LED Condition	Meaning	Action
Red	No RF Signal Lock	Check a suitable RF source is active, on correct frequency. Ensure Downconverters are connected. Ensure antennas are connected to downconverters. Ensure there is no interfering signal.
Amber	Has RF signal lock but no decoder lock	Check video is enabled at the transmitter. Check correct unit name is selected at the receiver to match the transmitter. Check that scrambling keys are matched.

11.5 Fault Symptoms

Symptom	Suggested Action
No RF Link	Check a suitable transmitter RF source is active, on correct frequency. Ensure Downconverters are connected. Ensure antennas are connected to downconverters. Ensure there is no interfering signal.
Poor link performance	Poor performance of the link can occur for the following reasons. - Interference. Should an interfering RF signal occur on the same frequency the performance of the link will be affected. Remove the interference or move to an alternative frequency. - Unsuitable antennas, or out of band antennas. See the antenna sections for guidance on antenna selection and use. - Reduced transmit power, ensure that the attenuation setting on the transmitter is appropriate for direct output, or for amplifiers connected. - Receive antenna positioning, where possible mount the receive antennas away from other objects, unobstructed and as high as possible. Poor alignment of directional antennas. - No Diversity operation. Ensure both down converters are operational.
Blue screen at receiver	Receiver RF LED not lit - see "No RF Link" section Receiver RF LED lit. Check video is enabled at the transmitter. Check correct unit name is selected at the receiver to match the transmitter. Check scrambling keys are matched.
Reduced Image quality	Image quality is affected by the video bit rate which can be read from the video bit rate field of the SOLO transmitter controller). The standard setting is 2.3Mb/s. However enabling audio, particularly the high quality audio modes, will reduce the video bit rate substantially. Therefore ensure an appropriate audio mode is selected or audio is fully disabled if not required.
No audio	Ensure audio is enabled at the transmitter (disabled by default).
Rolling black and white distorted video	Check that the "Output video standard" is set to the correct video standard. Also check the "Power-up line standard" option in each receiver's advanced tab. The MultiVue system supports PAL and NTSC but the two cannot be mixed, so all transmissions into the unit must be the same standard to correctly display the video.

12 LED Indicators

LED / Button	Colour	Meaning / Use
Power	Solid Green	Booting Up
	Flashing Green	Flashes once per second when operational, flashes faster when control messages received
	Flashing Amber	Warning – Typically seen when unit is trying to stream or rebroadcast more data than allocated
Power	Solid Green	Booting Up
	Flashing Green	Flashes once per second when operational, flashes faster when control messages received
Status 1	Red	No Lock on Receiver 1
	Amber	RF Lock on Receiver 1 but no decoder lock
	Green	Receiver 1 fully locked and decoding
Status 2	Red	No Lock on Receiver 2
	Amber	RF Lock on Receiver 2 but no decoder lock
	Green	Receiver 2 fully locked and decoding
Status 3	Red	No Lock on Receiver 3
	Amber	RF Lock on Receiver 3 but no decoder lock
	Green	Receiver 3 fully locked and decoding
Status 4	Red	No Lock on Receiver 4
	Amber	RF Lock on Receiver 4 but no decoder lock
	Green	Receiver 4 fully locked and decoding

13 Special Connector Pin Outs

13.6 Receiver Audio Connectors – 5-pin 0B Lemo

Pin No	Function
1	NC
2	NC
3	GND
4	Right
5	Left

13.7 S-Video – 4-pin Mini-DIN

Pin No	Function
1	Luminance Ground
2	Chrominance Ground
3	Luminance (Intensity)
4	Chrominance (Colour)

13.8 DC Power Input – 4-pin XLR

Pin No	Function
1	Supply Positive
2	Supply Positive
3	Supply Ground
4	Supply Ground

Note: Must use both pins for supply and ground as high currents are drawn by this system.

13.9 Ctrl Port – 9-pin Male D-Type

Pin No	Function
1	NC
2	Rx
3	Tx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

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